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=> file reg
FILE 'REGISTRY' ENTERED AT 11:37:39 ON 09 MAR 2004
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=> d his

     FILE 'REGISTRY' ENTERED AT 11:07:23 ON 09 MAR 2004
                E Γ-BUTYROLACTONE/CN
L1            1 S E3

     FILE 'HCA' ENTERED AT 11:08:15 ON 09 MAR 2004
L2        12879 S L1 OR GAMMA(2A)BUTYROLACTONE#

     FILE 'REGISTRY' ENTERED AT 11:08:16 ON 09 MAR 2004
                E 9-CROWN-3/CN
L3            1 S E3
                E 12-CROWN-4/CN
L4            1 S E3
                E 15-CROWN-5/CN
L5            1 S E3
                E 18-CROWN-6/CN
L6            1 S E3
                E 21-CROWN-7/CN
L7            1 S E3
                E 24-CROWN-8/CN
L8            1 S E3
                E 27-CROWN-9/CN
L9            1 S E3
                E 30-CROWN-10/CN
L10           1 S E3
L11          18 S 369.101.1/RID
L12         991 S 1473.68.1/RID
L13         955 S 3131.40.1/RID
L14        2265 S 5445.50.1/RID
L15          71 S 9727.20.1/RID
L16          22 S 11016.5.1/RID
L17          46 S 12019.16.1/RID
L18        4365 S L11-L17

     FILE 'HCA' ENTERED AT 11:17:53 ON 09 MAR 2004
L19       17995 S L18 OR (CROWN# OR MACROCYCLIC? OR MACROMOLECULAR?)(2A)E
L20      424190 S ELECTROLY?
L21      192046 S BATTERY OR BATTERIES OR (ELECTROCHEM? OR ELECTROLY? OR
L22        7902 S NONNEWTON? OR NON(A)NEWTON?
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L23       41119 S NONAQ# OR NONAQUEOUS? OR NONWATER? OR NONH2O OR NON(A)(
L24         519 S (L20 OR L21) AND L19
L25          11 S L24 AND L2
L26           0 S L24 AND L22
L27          87 S (L20 OR L21) AND L22
L28           2 S L27 AND L2
L29       76326 S POLYETHER# OR POLY(A)ETHER#
L30           1 S L27 AND L29
L31          39 S L24 AND L23
L32          22 S L20 AND L21 AND L19 AND L23
L33      498535 S VISC? OR CP OR C(W)P OR CENTIPOISE#
L34           7 S L24 AND L33

     FILE 'REGISTRY' ENTERED AT 11:29:39 ON 09 MAR 2004
L35           8 S L3-L10
                SEL L35 1-8 ES
L36        4509 S E1-E8

     FILE 'HCA' ENTERED AT 11:32:05 ON 09 MAR 2004
L37        6811 S L36
L38         281 S L37 AND (L20 OR L21)
L39          10 S L38 AND L2
L40           0 S L38 AND L22
L41          25 S L38 AND L23
L42          10 S L28 OR L30 OR L34
L43          11 S (L25 OR L39) NOT L42
L44          30 S (L32 OR L41) NOT (L42 OR L43)
L45           8 S L31 NOT (L42 OR L43 OR L44)
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=> file hca
FILE 'HCA' ENTERED AT 11:37:57 ON 09 MAR 2004

=> d l42 1-10 cbib abs hitstr hitind

L42 ANSWER 1 OF 10 HCA COPYRIGHT 2004 ACS on STN
139:103745 Secondary nonaqueous **electrolyte battery.**
Kono, Tatsuoki; Takami, Norio (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2003197257 A2 20030711, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-398106 20011227.

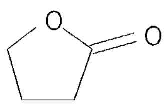
AB The **battery** has an electrode stack, contg. a separator between a cathode and an anode, and an nonaq. **electrolyte** soln.; where the **battery** satisfies K = M/D = 1.2+103-9.8+107 [D = distance between 2 electrodes; M =

area (mm2) of **battery** height + width]; and the **electrolyte** soln. is a **non-Newtonian** fluid.

IT **96-48-0, γ -Butyrolactone**
(**electrolyte**; structure of secondary nonaq. **electrolyte batteries** with controlled surface area and electrode distance)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M010-40
ICS H01M002-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary **battery** nonaq **electrolyte** **nonnewtonian** fluid

IT Carbonaceous materials (technological products)
(anode; structure of secondary nonaq. **electrolyte batteries** with controlled surface area and electrode distance)

IT Polyoxyalkylenes, uses
(**electrolyte**; structure of secondary nonaq. **electrolyte batteries** with controlled surface area and electrode distance)

IT 111706-40-2, Cobalt lithium oxide (CoLi0-102)
(cathode; structure of secondary nonaq. **electrolyte batteries** with controlled surface area and electrode distance)

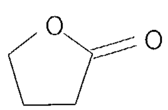
IT **96-48-0, γ -Butyrolactone**
96-49-1, Ethylene carbonate 14283-07-9, Lithium tetrafluoroborate
25322-68-3, Polyethylene oxide
(**electrolyte**; structure of secondary nonaq. **electrolyte batteries** with controlled surface area and electrode distance)

IT 9002-88-4, Polyethylene
(separator; structure of secondary nonaq. **electrolyte batteries** with controlled surface area and electrode distance)

L42 ANSWER 2 OF 10 HCA COPYRIGHT 2004 ACS on STN

138:26917 Nonaqueous **electrolyte** and secondary nonaqueous **electrolyte battery**. Kono, Tatsuoki; Takami, Norio (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2002359000 A2 20021213, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP

2001-297422 20010927. PRIORITY: JP 2001-94051 20010328.
AB The **electrolyte** soln. has an salt dissolved in an solvent mixt., and a polymer additive in the solvent mixt.; where the **electrolyte** soln. is a **non-Newtonian** fluid with viscosity 7-30000 cp at 20°C. The ratio (p) of ion cond. to viscosity (σ/η) in the **electrolyte** soln. is < 0.1, the solvent mixt. contains **γ -butyrolactone,** and the content of the polymer material of the formula (CH2CH2O)n is 0.01-10 % of the solvent mixt. The **battery** has an active mass contg. cathode, a Li intercalating anode and the above required **electrolyte** soln. in between.
IT **96-48-0, γ -Butyrolactone**
(Li salt **electrolyte** solns. contg. polymer additives in **γ -butyrolactone** solvent mixts. with controlled viscosity for secondary lithium **batteries**)
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium secondary **battery electrolyte** nonaq solvent polymer additive; nonaq solvent butyrolactone polymer additive content viscosity
IT **Battery electrolytes**
(Li salt **electrolyte** solns. contg. polymer additives in **γ -butyrolactone** solvent mixts. with controlled viscosity for secondary lithium **batteries**)
IT Polyoxyalkylenes, uses
(Li salt **electrolyte** solns. contg. polymer additives in **γ -butyrolactone** solvent mixts. with controlled viscosity for secondary lithium **batteries**)
IT Carbonaceous materials (technological products)
(anode; Li salt **electrolyte** solns. contg. polymer additives in **γ -butyrolactone** solvent mixts. with controlled viscosity for secondary lithium **batteries**)
IT Secondary **batteries**
(lithium; Li salt **electrolyte** solns. contg. polymer additives in **γ -butyrolactone** solvent mixts. with controlled viscosity for secondary lithium **batteries**)
IT **96-48-0, γ -Butyrolactone**

96-49-1, Ethylene carbonate 14283-07-9, Lithium tetrafluoroborate
25322-68-3, Polyethylene oxide
(Li salt **electrolyte** solns. contg. polymer additives in γ -**butyrolactone** solvent mixts. with controlled viscosity for secondary lithium **batteries**)

IT 111706-40-2, Cobalt lithium oxide (CoLi0-1O2)
(cathode; Li salt **electrolyte** solns. contg. polymer additives in γ -**butyrolactone** solvent mixts. with controlled viscosity for secondary lithium **batteries**)

L42 ANSWER 3 OF 10 HCA COPYRIGHT 2004 ACS on STN

136:226113 High-throughput screening of chiral compounds to determine their enantiomeric purity by capillary electrophoresis. Reetz, Manfred Theodor; Belder, Detlev; Kuehling, Klaus M.; Hinrichs, Heike; Deege, Alfred (Studiengesellschaft Kohle Mbh, Germany). PCT Int. Appl. WO 2002018922 A2 20020307, 25 pp. DESIGNATED STATES: W: CA, JP, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2001-EP9833 20010825. PRIORITY: DE 2000-10042451 20000829.

AB The enantiomeric purity of chiral compds. can be detd. by high-throughput screening using capillary array electrophoresis using **electrolytes** with added chiral selectors or the enantiomers are transformed into diastereomers before their sepn. The following chiral compds. can be used as chiral selectors: cyclodextrins or their derivs., carbohydrates, **crown ethers**, peptides, calixarenes, or detergents. An additive, such as a linear polyacrylamide or a cellulose deriv., is added to the **electrolyte** to increase the **viscosity**. The microfluid systems are used in the form of microchips. Chiral fluorescence markers such as R/S-[1-(9-fluorenyl)-ethyl]chloroformate, R/S-1-(1-naphthyl)ethylisothiocyanate, or R/S-1-phenylethyl isothiocyanate are used as derivatizing reagents to transform the enantiomers into diastereomers. Fluorescence, UV/VIS, or IR spectroscopy, or conductometry, electrochem. methods, refractometry, CD, or mass spectrometry can be used for detection.

IC ICM G01N027-00

CC 80-4 (Organic Analytical Chemistry)
Section cross-reference(s): 9

IT Polyamides, analysis
(aliph., **electrolyte** additive; high-throughput screening of chiral compds. to det. enantiomeric purity by capillary electrophoresis)

IT Carbohydrates, analysis
Crown ethers
Peptides, analysis
(chiral selector; high-throughput screening of chiral compds. to det. enantiomeric purity by capillary electrophoresis)

IT 9003-05-8, Polyacrylamide 9004-34-6D, Cellulose, derivs.
(**electrolyte** additive; high-throughput screening of chiral compds. to det. enantiomeric purity by capillary electrophoresis)

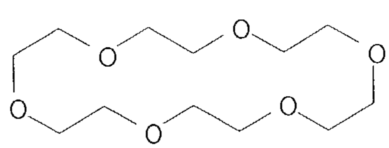
L42 ANSWER 4 OF 10 HCA COPYRIGHT 2004 ACS on STN
134:183799 Diffusion, reaction kinetics and exchange of sodium in aqueous solutions containing a **crown ether**.
Hallwass, F.; Engelsberg, M.; Simas, A. M.; Barros, W. (Departamento de Quimica Fundamental, Universidade Federal de Pernambuco, Recife, Recife, 50670-901, Brazil). Chemical Physics Letters, 335(1-2), 43-49 (English) 2001. CODEN: CHPLBC. ISSN: 0009-2614. Publisher: Elsevier Science B.V..

AB Sodium self-diffusion coeffs. in aq. solns. contg. various amts. of **crown ether** (18-**crown**-6) were measured using pulsed field gradient NMR techniques. The fast exchange on a NMR time scale, prevailing in these systems as a result of the reaction kinetics, was monitored using 23Na chem. shift and spin-spin relaxation rate measurements. The addn. of very small amts. of 18-crown-6, while having a negligible effect on the macroscopic **viscosity**, can cause an anion-sensitive suppression of sodium diffusion which, for some **electrolytes**, was found to be quite significant.

IT **17455-13-9**, 18-Crown-6
(diffusion, reaction kinetics and exchange of sodium in aq. solns. contg. **crown ether**)

RN 17455-13-9 HCA

CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



CC 65-6 (General Physical Chemistry)
Section cross-reference(s): 67, 77

ST sodium diffusion reaction kinetics **crown ether** aq soln NMR

IT Complexation kinetics
(diffusion, reaction kinetics and exchange of sodium in aq. solns. contg. **crown ether**)

IT **Viscosity**
(of aq. solns. contg. sodium and 18-crown-6)

IT Diffusion
(self-; diffusion, reaction kinetics and exchange of sodium in aq. solns. contg. **crown ether**)

IT 7440-23-5, Sodium, properties

(diffusion, reaction kinetics and exchange of sodium in aq. solns. contg. **crown ether**)

IT **17455-13-9**, 18-Crown-6
(diffusion, reaction kinetics and exchange of sodium in aq. solns. contg. **crown ether**)

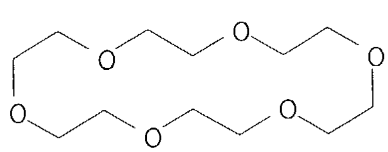
L42 ANSWER 5 OF 10 HCA COPYRIGHT 2004 ACS on STN
132:157450 The studies of **viscosity** behaviour in aqueous 18-crown-6 solutions at 25 °C. Patil, K. J.; Pawar, R. B.; Patil, P. D. (Department of Chemistry, Shivaji University, Kolhapur, 416 004, India). Journal of Molecular Liquids, 84(2), 223-233 (English) 2000. CODEN: JMLIDT. ISSN: 0167-7322. Publisher: Elsevier Science S.A..

AB The **viscosities** of aq. solns. of 18-crown-6 (0.04 - 0.24 M) have been measured at 25 °C. The relative **viscosities**, in the studied concn. range, can be fitted well with the relation ηr = 1 + Bc + Dc2. The **viscosity** B-coeff. and D-coeff. are found to be high when compared with those reported for other simple non-**electrolyte** solutes. These results are interpreted in terms of hydrophobic hydration and occupation of **crown ether** cavities by water mols., leading to the formation of a spherical entity (brownon), slipping through the hydrophobic hydration sheath. The anal. of the data shows that 5 water mols. are embedded in the **crown ether** cavity. The structural interactions may involve stacking type equil. stabilized by co-operative interactions amongst the water mols. in the cavity of one **crown ether** mol. with those of the other **crown ether** mol. Preliminary results of the **viscosity** measurements of the 0.24 M aq. 18C6 solns. involving varied amts. of the salt, KBr, are also reported. The **viscosity** B-coeff. for KBr in aq. **crown ether** solns. is found to be almost similar to that found in the aq. solns. However, the A-coeff. (a measure of ion-ion interactions) cannot be interpreted unambiguously.

IT **17455-13-9**, 18-Crown-6
(**viscosity**, d. and apparent mol. vol. of aq. solns. of 18-crown-6 with or without potassium chloride)

RN 17455-13-9 HCA

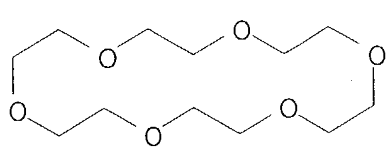
CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



CC 68-5 (Phase Equilibriums, Chemical Equilibriums, and Solutions)
Section cross-reference(s): 69

ST crown aq soln **viscosity** d mol vol; potassium chloride
crown aq soln **viscosity** d mol vol
IT Density
Hydration number
Molar volume
Viscosity
(**viscosity**, d. and apparent mol. vol. of aq. solns. of 18-crown-6 with or without potassium chloride)
IT 7447-40-7, Potassium chloride, processes
(**viscosity**, d. and apparent mol. vol. of aq. solns. of 18-crown-6 with or without potassium chloride)
IT **17455-13-9**, 18-Crown-6
(**viscosity**, d. and apparent mol. vol. of aq. solns. of 18-crown-6 with or without potassium chloride)

L42 ANSWER 6 OF 10 HCA COPYRIGHT 2004 ACS on STN
131:93148 Dielectric relaxation of LiCl solutions in methylpyrrolidone on addition of a second solvent component. Biedenkap, R.; Stockhausen, M. (Institut Physikalische Chemie, Univ. Munster, Munster, D-48149, Germany). Zeitschrift fuer Physikalische Chemie (Muenchen), 211(1), 29-46 (English) 1999. CODEN: ZPCFAX. ISSN: 0044-3336. Publisher: R. Oldenbourg Verlag.
AB Dielec. loss spectra up to 72 GHz were measured at 20° for binary liq. mixts. of N-methyl-2-pyrrolidone with 8 other substances as additives and for LiCl solns. in those binary solvents. After subtraction of the cond. contribution, the spectra can be described by a superposition of ≤4 Debye type components. The discussion is focused on the 2 lower frequency components, which are related to ionic relaxation processes. The systems studied fall into 2 groups: the 1st comprises various cyclic and acyclic ethers and some chloro compds. as additives and is characterized by a comparably long ionic relaxation time. The 2nd group comprises pyrrolidone derivs., disubstituted amides and MeCN as additives and is characterized by a ionic relaxation time clearly shorter than for the 1st group.
IT **17455-13-9**, 18-Crown-6
(dielec. relaxation of LiCl solns. in methylpyrrolidone on addn. of a 2nd solvent component)
RN 17455-13-9 HCA
CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



CC 68-6 (Phase Equilibriums, Chemical Equilibriums, and Solutions)

Section cross-reference(s): 76

IT Dielectric relaxation
Electrolytic solutions
(dielec. relaxation of LiCl solns. in methylpyrrolidone on addn. of a 2nd solvent component)

IT **Viscosity**
(of LiCl solns. in methylpyrrolidone on addn. of a 2nd solvent component)

IT 68-12-2, DMF, properties 75-05-8, Acetonitrile, properties 108-90-7, Chlorobenzene, properties 110-88-3, 1,3,5-Trioxane, properties 111-96-6, Diglyme 123-91-1, 1,4-Dioxane, properties 542-18-7, Chlorocyclohexane 872-50-4, N-Methyl-2-pyrrolidone, properties 7447-41-8, Lithium chloride, properties
17455-13-9, 18-Crown-6
(dielec. relaxation of LiCl solns. in methylpyrrolidone on addn. of a 2nd solvent component)

L42 ANSWER 7 OF 10 HCA

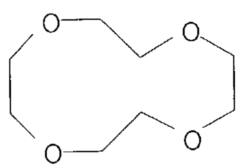
129:138434 Ionically conducting glasses with subambient glass transition temperatures. Dillon, R. E.; Shriver, D. F. (Department of Chemistry and Materials Research Center, Northwestern University, Evanston, IL, 60208-3113, USA). Materials Research Society Symposium Proceedings, 496(Materials for Electrochemical Energy Storage and Conversion II--Batteries, Capacitors and Fuel Cells), 505-510 (English) 1998. CODEN: MRSPDH. ISSN: 0272-9172. Publisher: Materials Research Society.

AB Cryptands and **crown ethers** along with the lithium salt, LiCF3SO2N(CH2)3OCH3 (LiMPSA) were employed to produce a new type of amorphous **electrolyte**. The key to producing an amorphous phase was the mismatch between the cavity size of the macrocycle and the diam. of the cation. The addn. of poly(bis-(2(2-methoxyethoxy)ethoxy)phosphazene) (MEEP) to the amorphous complex, LiMPSA/2.2.2 Cryptand, imparts improved electrochem. and **viscoelastic** properties. Conversely, when poly(sodium-4-styrenesulfonate) (PS4SS) is added to the amorphous complex, LiMPSA/2.2.2 Cryptand, the product crystallizes. The ionic cond. of the MEEP rubbery **electrolyte** is a full order of magnitude higher when compared to the analogous PS4SS doped **electrolyte** (3.8+10-5 S cm-1 (MEEP), 1.7+10-6 S cm-1 (PS4SS) both at 305°K).

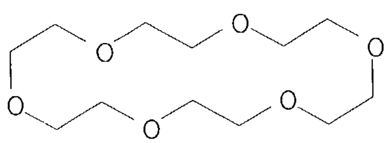
IT **294-93-9**, 12-Crown-4 **17455-13-9**, 1,4,7,10,13,16-Hexaoxacyclooctadecane **33100-27-5**, 15-Crown-5
(ionically conducting glass **electrolytes** with subambient glass transition temps.)

RN 294-93-9 HCA

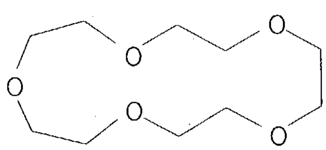
CN 1,4,7,10-Tetraoxacyclododecane (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 17455-13-9 HCA
CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



RN 33100-27-5 HCA
CN 1,4,7,10,13-Pentaoxacyclopentadecane (8CI, 9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 58, 72
ST cryptand **crown ether** lithium salt **electrolyte**; ionically conducting glass lithium **battery electrolyte**
IT **Battery electrolytes**
Electric conductivity
Electric conductors, glass
(ionically conducting glasses with subambient glass transition temps.)
IT **294-93-9**, 12-Crown-4 **17455-13-9**, 1,4,7,10,13,16-Hexaoxacyclooctadecane 23978-09-8 31250-06-3 31364-42-8 **33100-27-5**, 15-Crown-5
(ionically conducting glass **electrolytes** with subambient glass transition temps.)

L42 ANSWER 8 OF 10 HCA COPYRIGHT 2004 ACS on STN
128:193131 Rheological behavior of silica sol dispersed in water-soluble polyurethane. Yuan, Qiaolong; Ying, Shengkang (Institute Material Sci. & Engin., East China Univ. Science Technology, Shanghai, 200237, Peop. Rep. China). Gongneng Gaofenzi Xuebao, 10(4), 456-462 (Chinese) 1997. CODEN: GGXUEH. ISSN: 1004-9843. Publisher: Huadong Huagong Xueyuan Chubanshe.

AB Monodispersed silica sols were prepd. by ion-exchanger from sodium silicate soln. (water glass). The intrinsic viscosity of the dil. silica sols is 0.02, and independent of their sphere size. The addn. of **electrolyte** (sodium chloride) in silica sols converts Newtonian flow to **non-Newtonian** flow. The dild. poly(urethane-urea-amine) neutralized with glacial acetic acid is a dilatant fluid. The adsorption of poly(urethane-urea-amine) on the silica particles causes depletion of the polymer concn. in the dispersion and vol. augmentation of the dispersed phase. The apparent viscosity of the water-sol. polyurethane is decreased after mixed with silica sol. The dispersion is dilatant because of the adsorption of poly(urethane-urea-amine) on the silica particles, and the flow behavior of the dispersion is a pseudoplastic fluid because of the adsorption of poly(urethane-urea-amine) among the silica spheres.

CC 36-5 (Physical Properties of Synthetic High Polymers)

IT Polyurethanes, properties
Polyurethanes, properties
Polyurethanes, properties
(**polyether**-polyurea-, block, acetic salts; rheol. behavior of silica sol dispersed in water-sol. polyurethane)

IT Polyureas
Polyureas
Polyureas
(**polyether**-polyurethane-, block, acetic salts; rheol. behavior of silica sol dispersed in water-sol. polyurethane)

IT **Polyethers**, properties
Polyethers, properties
Polyethers, properties
(polyurea-polyurethane-, block, acetic salts; rheol. behavior of silica sol dispersed in water-sol. polyurethane)

IT 64-19-7DP, Acetic acid, reaction products with **polyether** /TDI/diethylenetriamine polyurethanes, properties 111-40-0DP, Diethylenetriamine, polymers with **polyether** and TDI, acetic salts 26471-62-5DP, TDI, polymers with **polyether** and diethylenetriamine, acetic salts
(rheol. behavior of silica sol dispersed in water-sol. polyurethane)

L42 ANSWER 9 OF 10 HCA COPYRIGHT 2004 ACS on STN

123:274603 Use of carbon-paste electrodes modified with macrocyclic compounds in voltammetric analysis. Shaidarova, L. G.; Ulakhovich, N. A.; Al'-Gakhri, M. A.; Budnikov, G. K.; Glebov, A. N. (Kazan State Univ., Tatarstan, 420034, Russia). Journal of Analytical Chemistry (Translation of Zhurnal Analiticheskoi Khimii), 50(7), 692-7 (English) 1995. CODEN: JACTE2. ISSN: 1061-9348. Publisher: MAIK Nauka/Interperiodica.

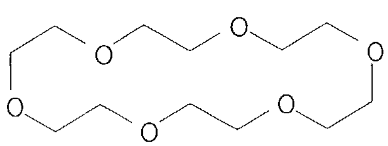
AB Different methods of modifying carbon-paste electrodes with

crown ethers were suggested for detg. lead(II) by stripping voltammetry. The use of 18-crown-6 derivs. as reagents incorporated in a **CP** electrode and the presence of copper(II) in the test soln., or the incorporation of CuO in the paste and the introduction of a **crown ether** into the soln., improved the detection limit of lead(II) to 2.5 + 10-9 M, due to the formation of a stable 1:1 heteronuclear **crown ether** complex of lead(II) and copper(II) at the electrode surface at the preconcn. stage. The method was used for environmental anal. (soil, plant, water, and air anal.). The stability consts. of heteronuclear 18-crown-6 copper(II) complexes with alkali metal and lead cations were calcd.

IT **17455-13-9**, 18-Crown-6
(carbon-paste electrodes modified with **crown ethers** in lead detn. by anodic stripping voltammetry in presence of copper(II))

RN 17455-13-9 HCA

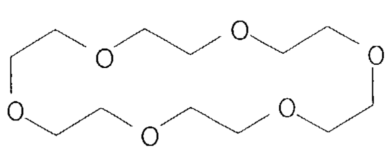
CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



IT **17455-13-9D**, 18-Crown-6, copper complexes reactions with alkali metals and lead
(stability const. of)

RN 17455-13-9 HCA

CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



CC 79-6 (Inorganic Analytical Chemistry)
Section cross-reference(s): 59, 60, 61, 68, 72

ST carbon paste electrode **crown ether** modified; copper oxide modified carbon paste electrode; lead trace detn anodic stripping voltammetry; heteronuclear complex **crown ether** copper lead; environment analysis lead anodic stripping voltammetry

IT Air analysis
Environmental analysis
Plant analysis
Soil analysis

(carbon-paste electrodes modified with **crown ethers** in lead detn. by anodic stripping voltammetry in presence of copper(II))
IT Macrocyclic compounds
(carbon-paste electrodes modified with **crown ethers** in lead detn. by anodic stripping voltammetry in presence of copper(II))
IT Electrodes
(carbon-paste electrodes modified with **crown ethers** in lead detn. in presence of copper(II))
IT Alkali metals, analysis
(complexation of copper and lead with **crown ethers** in relation to)
IT **Crown** compounds
(**ethers**, carbon-paste electrodes modified with **crown ethers** in lead detn. by anodic stripping voltammetry in presence of copper(II))
IT 1317-38-0, Cupric oxide, uses
(carbon-paste electrode modified with copper oxide in lead detn. by anodic stripping voltammetry in presence of **crown ether**)
IT 7732-18-5, Water, analysis
(carbon-paste electrodes modified with **crown ethers** in lead detn. by anodic stripping voltammetry in presence of copper(II))
IT 7439-92-1, Lead, analysis
(carbon-paste electrodes modified with **crown ethers** in lead detn. by anodic stripping voltammetry in presence of copper(II))
IT 14187-32-7, Dibenzo-18-crown-6 16069-36-6, Dicyclohexyl-18-crown-6 **17455-13-9**, 18-Crown-6 87016-67-9
(carbon-paste electrodes modified with **crown ethers** in lead detn. by anodic stripping voltammetry in presence of copper(II))
IT 7440-50-8, Copper, uses
(carbon-paste electrodes modified with **crown ethers** in lead detn. by anodic stripping voltammetry in presence of copper(II))
IT 7440-44-0, Carbon, analysis
(carbon-paste electrodes modified with **crown ethers** in lead detn. by anodic stripping voltammetry in presence of copper(II))
IT 7439-92-1D, Lead, reaction with copper 18-crown-6 complexes 7440-09-7D, Potassium, reaction with copper 18-crown-6 complexes 7440-17-7D, Rubidium, reaction with copper 18-crown-6 complexes 7440-23-5D, Sodium, reaction with copper 18-crown-6 complexes 7440-50-8D, Copper, 18-crown-6 complexes reactions with alkali metals and lead **17455-13-9D**, 18-Crown-6, copper complexes

reactions with alkali metals and lead
(stability const. of)

IT 7647-14-5, Sodium chloride (NaCl), analysis 7647-15-6, Sodium bromide (NaBr), analysis 7681-49-4, Sodium fluoride (NaF), analysis
(supporting **electrolyte;** carbon-paste electrodes modified with **crown ethers** in lead detn. by anodic stripping voltammetry in presence of copper(II))

L42 ANSWER 10 OF 10 HCA COPYRIGHT 2004 ACS on STN

115:108928 Biological microemulsions: part III-the formation characteristics and transport properties of saffola-aerosol OT-hexylamine-water system. Paul, B. K.; Moulik, S. P. (Geol. Stud. Unit, Indian Statistical Inst., Calcutta, 700 035, India). Indian Journal of Biochemistry & Biophysics, 28(3), 174-83 (English) 1991. CODEN: IJBBBQ. ISSN: 0301-1208.

AB The results of formation, phase behavior and phys. properties of biol. microemulsions prepd. from saffola/AOT/hexylamine/water in presence of different additives, viz. cholesterol, **crown ether,** urea and brine, are presented. The additives and temp. have striking effects; mono-, bi- and triphasic solns. interchanging proportions among themselves. The conduction of microemulsion at different [Water/AOT] ratios (w = 9, 10, 14, 18, 20, 39 and 45) has shown conspicuous dependence on temp. with a significant degree of percolation, whereas the dependence of **viscosity** on temp. has shown normal declining tread with temp. A max. in **viscosity** with respect to its variation with amt. of water has been obsd. The Walden product ($\lambda\eta$) has evidenced noncompensation of ion transport by conduction with the **viscosity** of the medium. The activation energies evaluated for conduction (ΔE^{*}cond) and **viscosity** (ΔE^{*}vis) are systematic except at [Water/AOT] ratio, w = 20. The additives cholesterol, **crown ether,** and their mixt. have shown a decreasing effect on the ΔE^{*}cond for percolation, whereas ΔE^{*}vis has increased in their presence. The bicontinuous microemulsion has the prospect for use as liq. membrane.

CC 6-6 (General Biochemistry)
Section cross-reference(s): 66

ST microemulsion phase diagram **viscosity** cond percolation; biomembrane AOT saffola hexylamine microemulsion; membrane microemulsion model phys transport property

IT Hydration, chemical
(of saffola-AOT-hexylamine microemulsion, **viscosity** dependence on)

IT **Electrolytes**
(transport of, by microemulsions, as biomembrane model)

IT **Crown** compounds

```
    (ethers, saffola-AOT-hexylamine microemulsion
    percolation behavior response to)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     FILE 'REGISTRY' ENTERED AT 11:44:17 ON 09 MAR 2004
L46              1 S 25322-68-3
                   ACT EOEGPOPG/A
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L47 (       9682)SEA FILE=REGISTRY 75-21-8/CRN
L48 (      21863)SEA FILE=REGISTRY 107-21-1/CRN
L49 (       9283)SEA FILE=REGISTRY 75-56-9/CRN
L50 (       8413)SEA FILE=REGISTRY 57-55-6/CRN
L51 (       7690)SEA FILE=REGISTRY (L47 OR L48) AND (L49 OR L50)
L52             11 SEA FILE=REGISTRY L51 AND 2/NC
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L54          16524 S L52
L55           4681 S L53 AND (L20 OR L21)
L56              6 S L55 AND L22
L57            187 S L55 AND L23
L58            236 S L55 AND L33
L59              5 S L57 AND L58
L60            129 S L55 AND L2
L61             28 S L60 AND L57
L62              8 S L60 AND L58
L63              2 S L61 AND L62
L64            480 S L54 AND (L20 OR L21)
L65              0 S L64 AND L22
L66             18 S L64 AND L2
L67              4 S L66 AND L23
L68              0 S L66 AND L33
L69              5 S L66 AND (L57 OR L58 OR L60)
                   E POLYOXYALKYLENES/CV
L70          62483 S E3
                   E POLYOXYPROPYLENES/CV
L71           4195 S L70 AND (L20 OR L21)
L72            138 S L71 AND L2
L73              5 S L71 AND L22
L74             27 S L72 AND L23
L75              8 S L72 AND L33
L76              3 S L74 AND L75
L77             24 S (L56 OR L59 OR L62 OR L63 OR L67 OR L69 OR L73 OR L75 O
L78             11 S L43 NOT L77
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L79          30 S L44 NOT L77
L80           8 S L45 NOT L77
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L77 ANSWER 1 OF 24 HCA COPYRIGHT 2004 ACS on STN

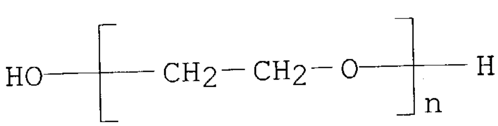
139:367356 Polymer **electrolytes** from PEO and novel quaternary ammonium iodides for dye-sensitized solar cells. Kang, J.; Li, W.; Wang, X.; Lin, Y.; Xiao, X.; Fang, S. (Institute of Chemistry, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China). Electrochimica Acta, 48(17), 2487-2491 (English) 2003. CODEN: ELCAAV. ISSN: 0013-4686. Publisher: Elsevier Science Ltd..

AB Polymer **electrolytes** were prepd. by blending high mol. wt. poly(ethylene oxide) (PEO) and novel quaternary ammonium iodides, polysiloxanes with oligo(oxyethylene) side chains and quaternary ammonium groups. XRD measurements confirmed relatively low crystallinity when the quaternary ammonium iodides were incorporated into the PEO host. The ionic cond. of these complexes was improved with the addn. of plasticizers. The improvement in ionic cond. was detd. by the polarity, **viscosity** and amts. of plasticizers. A plasticized **electrolyte** contg. the novel quaternary ammonium iodide was successfully used in fabricating a quasi-solid-state dye-sensitized solar cell for the 1st time. The fill factor and energy conversion efficiency of the cell are 0.68 and 1.39%, resp.

IT **25322-68-3**, PEO
(blend with polysiloxane having oligo(oxyethylene) side chains and quaternary ammonium iodide groups; blend of poly(ethylene oxide) and polysiloxane having quaternary ammonium groups as **electrolyte** for dye-sensitized solar cells)

RN 25322-68-3 HCA

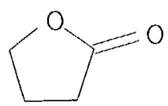
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IT **96-48-0**
(plasticizer; blend of poly(ethylene oxide) and polysiloxane having quaternary ammonium groups as **electrolyte** for dye-sensitized solar cells with)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
ST ethylene oxide siloxane quaternary ammonium polymer **electrolyte** solar **cell**
IT Photoelectrochemical cells
Polymer **electrolytes**
(blend of poly(ethylene oxide) and polysiloxane having quaternary ammonium groups as **electrolyte** for dye-sensitized solar cells)
IT Quaternary ammonium compounds, uses
(blend of poly(ethylene oxide) and polysiloxane having quaternary ammonium groups as **electrolyte** for dye-sensitized solar cells)
IT **Polyoxyalkylenes, uses**
(blend with polysiloxane having oligo(oxyethylene) side chains and quaternary ammonium iodide groups; blend of poly(ethylene oxide) and polysiloxane having quaternary ammonium groups as **electrolyte** for dye-sensitized solar cells)
IT Polysiloxanes, uses
(polyoxyalkylene-, graft, reaction products with dimethylallylamine and Me iodide; blend of poly(ethylene oxide) and polysiloxane having quaternary ammonium groups as **electrolyte** for dye-sensitized solar cells)
IT **Polyoxyalkylenes, uses**
(polysiloxane-, graft, reaction products with dimethylallylamine and Me iodide; blend of poly(ethylene oxide) and polysiloxane having quaternary ammonium groups as **electrolyte** for dye-sensitized solar cells)
IT 13463-67-7, Titanium oxide (TiO_2), uses
(blend of poly(ethylene oxide) and polysiloxane having quaternary ammonium groups as **electrolyte** for dye-sensitized solar cells with)
IT **25322-68-3**, PEO
(blend with polysiloxane having oligo(oxyethylene) side chains and quaternary ammonium iodide groups; blend of poly(ethylene oxide) and polysiloxane having quaternary ammonium groups as **electrolyte** for dye-sensitized solar cells)
IT **96-48-0** 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
(plasticizer; blend of poly(ethylene oxide) and polysiloxane having quaternary ammonium groups as **electrolyte** for dye-sensitized solar cells with)

IT 74-88-4D, Methyl iodide, reaction products with PEG-grafted polymethylsiloxane hydrosilation products with dimethylallylamine 2155-94-4D, N,N-Dimethylallylamine, reaction products with PEG-grafted polymethylsiloxane, quaternized with Me iodide 27252-80-8D, Polyethylene glycol allyl methyl ether, reaction products with polymethylsiloxane and dimethylallylamine, quaternized with Me iodide 203399-77-3D, Ethylene oxide-methylsilanediol graft copolymer methyl ether, reaction products with dimethylallylamine, quaternized with Me iodide
(poly(ethylene oxide) blend; blend of poly(ethylene oxide) and polysiloxane having quaternary ammonium groups as **electrolyte** for dye-sensitized solar cells)

L77 ANSWER 2 OF 24 HCA COPYRIGHT 2004 ACS on STN
138:388171 Lithium salt having oligoether group, ionic conducting material, and liquid **electrolyte** for secondary **battery**. Fujinami, Tatsuo (Toyota Motor Corp., Japan; Konpon Kenkyusho K. K.). Jpn. Kokai Tokkyo Koho JP 2003146941 A2 20030521, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-344886 20011109.

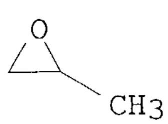
AB The claimed Li salt is represented as LiAlXn(OY)4-n; (X = electron-withdrawing group; Y = oligoether group). The claimed ionic conducting material comprises the Li salt dispersed in a matrix. Optionally, the ionic conducting material comprises $BaTiO_3$. The claimed liq. **electrolyte** comprises the Li salt dissolved in a solvent. The Li salt provides high ionic cond. without using a **nonaq.** solvent and safety.

IT **9003-11-6D**, Ethylene oxide-propylene oxide copolymer, lithium complex **25322-68-3D**, lithium complex
(aluminate-structure lithium salt having oligoether group for ionic conducting material and liq. **electrolyte**)

RN 9003-11-6 HCA
CN Oxirane, methyl-, polymer with oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9
CMF C3 H6 O

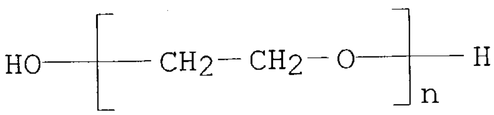


CM 2

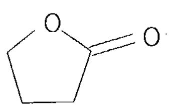
CRN 75-21-8

CMF C2 H4 O

RN 25322-68-3 HCA
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IT **96-48-0, γ -Butyrolactone**
(solvent; aluminate-structure lithium salt having oligoether group for ionic conducting material and liq. **electrolyte**)
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IC ICM C07C053-18
ICS H01B001-06; H01M010-40; C07F001-02; C07F005-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
ST lithium salt oligoether aluminate ion conductor; polymer **electrolyte** lithium salt oligoether aluminate secondary **battery** safety; liq **electrolyte** lithium salt oligoether aluminate
IT **Battery electrolytes**
Ionic conductivity
Ionic conductors
Polymer **electrolytes**
Safety
(aluminate-structure lithium salt having oligoether group for ionic conducting material and liq. **electrolyte**)
IT Fluoropolymers, uses
Polyoxyalkylenes, uses
(lithium complex; aluminate-structure lithium salt having oligoether group for ionic conducting material and liq. **electrolyte**)
IT 528521-95-1 528521-96-2

(aluminate-structure lithium salt having oligoether group for ionic conducting material and liq. **electrolyte**)

IT 7439-93-2D, Lithium, polymer complex **9003-11-6D**, Ethylene oxide-propylene oxide copolymer, lithium complex 9003-42-3D, Polyethyl methacrylate, lithium complex 9003-63-8D, Polybutyl methacrylate, lithium complex 9011-14-7D, Polymethyl methacrylate, lithium complex 9011-17-0D, Hexafluoropropylene-vinylidene fluoride copolymer, lithium complex 24937-79-9D, Poly(vinylidene fluoride), lithium complex **25322-68-3D**, lithium complex 26915-72-0D, Methoxypolyethylene glycol methacrylate, lithium complex

(aluminate-structure lithium salt having oligoether group for ionic conducting material and liq. **electrolyte**)

IT 12047-27-7, Barium titanium oxide ($BaTiO_3$), uses

(filler; aluminate-structure lithium salt having oligoether group for ionic conducting material and liq. **electrolyte**)

IT 528521-93-9P 528521-94-0P

(prepn. of; aluminate-structure lithium salt having oligoether group for ionic conducting material and liq. **electrolyte**)

IT 76-05-1, Trifluoroacetic acid, reactions 112-35-6, Triethylene glycol monomethyl ether 16853-85-3, Aluminum lithium tetrahydride

(reaction of; aluminate-structure lithium salt having oligoether group for ionic conducting material and liq. **electrolyte**)

IT **96-48-0, γ -Butyrolactone**

96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 110-71-4, Ethylene glycol dimethyl ether 111-96-6, Diethylene glycol dimethyl ether 616-38-6, Dimethyl carbonate

(solvent; aluminate-structure lithium salt having oligoether group for ionic conducting material and liq. **electrolyte**)

L77 ANSWER 3 OF 24 HCA COPYRIGHT 2004 ACS on STN

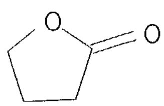
138:274065 Secondary lithium polymer **electrolyte battery** and its manufacture. Torata, Naoto; Nishijima, Motoaki; Nishimura, Naoto (Sharp Kabushiki Kaisha, Japan). PCT Int. Appl. WO 2003026056 A1 20030327, 48 pp. DESIGNATED STATES: W: CN, IN, KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2002-JP9532 20020917. PRIORITY: JP 2001-282603 20010918.

AB The **battery** has a polymer **electrolyte** layer, comprising a Li^+ conductive polymer gel, between a cathode and an anode; and is manufd. by forming a precursor soln. contg. ≥1 polymerizable monomer, a Li salt, a **nonaq**. org. solvent mixt., and 500-10,000 ppm photoinitiator initiating polymn. reaction by UV radiation; impregnating the cathode and/or the anode and a

substrate with the precursor soln., and polymg. the polymerizable monomer by UV radiation with illuminance ≥ 30 mW/cm2 for 0.1-20 s. to form the polymer **electrolyte** layer. By optimizing the concn. of the photoinitiator and the UV radiation illuminance, the **battery** characteristics and productivity can be improved.

IT **96-48-0**, γ **-Butyrolactone**
9003-11-6, Ethylene oxide-propylene oxide copolymer
(manuf. of polymer **electrolytes** using photoinitiator and UV radiation with controlled concn. and illuminance for secondary lithium **batteries**)

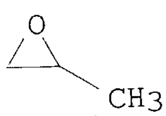
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



RN 9003-11-6 HCA
CN Oxirane, methyl-, polymer with oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9
CMF C3 H6 O



CM 2

CRN 75-21-8
CMF C2 H4 O

IC ICM H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary lithium **battery** polymer **electrolyte** manuf; photoinitiator concn UV radiation illuminance
IT Polyethers, uses
(acrylates; manuf. of polymer **electrolytes** using

photoinitiator and UV radiation with controlled concn. and illuminance for secondary lithium **batteries**)

IT Secondary **batteries**
(lithium; manuf. of polymer **electrolytes** using photoinitiator and UV radiation with controlled concn. and illuminance for secondary lithium **batteries**)

IT **Battery electrolytes**
(manuf. of polymer **electrolytes** using photoinitiator and UV radiation with controlled concn. and illuminance for secondary lithium **batteries**)

IT 947-19-3, 1-Hydroxy-cyclohexyl-phenylketone 24650-42-8, 2,2-Dimethoxy-2-phenylacetophenone 75980-60-8 145052-34-2, Bis(2,6-dimethoxybenzoyl)-2,4,4-trimethyl-pentylphosphine oxide
(manuf. of polymer **electrolytes** using photoinitiator and UV radiation with controlled concn. and illuminance for secondary lithium **batteries**)

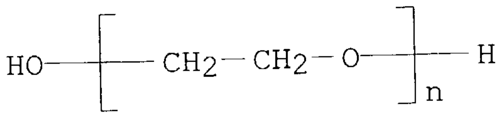
IT 79-10-7D, Acrylic acid, esters, polymers **96-48-0**, **γ -Butyrolactone** 96-49-1, Ethylene carbonate 872-36-6, Vinylene carbonate **9003-11-6**, Ethylene oxide-propylene oxide copolymer 12190-79-3, Cobalt lithium oxide ($CoLiO_2$) 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 26748-41-4
(manuf. of polymer **electrolytes** using photoinitiator and UV radiation with controlled concn. and illuminance for secondary lithium **batteries**)

IT 7782-42-5, Graphite, uses
(synthetic, amorphous; manuf. of polymer **electrolytes** using photoinitiator and UV radiation with controlled concn. and illuminance for secondary lithium **batteries**)

L77 ANSWER 4 OF 24 HCA COPYRIGHT 2004 ACS on STN
137:339975 **Nonaqueous electrolyte** secondary **battery** having porous polymer layer on depolarization layer and manufacture thereof. Tagawa, Masahiro; Kitano, Shinya; Hasumi, Takeshi (Japan Storage Battery Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002313429 A2 20021025, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-120516 20010419.

AB The **nonaq. electrolyte** secondary **battery** has a depolarization layer on a pos. electrode and/or a neg. electrode which has a porous polymer on the surface and in the pores, wherein a wt. of the porous polymer per unit vol. on the surface is higher than that in the pores and a thickness of the porous polymer on the surface is set at 0.1-6 μm. The process comprises the steps of (1) applying an active agent on a metal foil current collector to form an electrode, (2) pressing the electrode, (3) impregnating the electrode with a polymer soln. which has a **viscosity** ≥1,000 cps and contains a 1st solvent, (4) extg. the 1st solvent in the polymer on the electrode using a 2nd

solvent, and (5) drying the electrode.
IT **25322-68-3**, PEO
(porous polymer in depolarization layer of **nonaq.** **electrolyte** secondary **battery**)
RN 25322-68-3 HCA
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IC ICM H01M010-40
ICS H01M004-02; H01M004-04; H01M004-62
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST porous polymer depolarization layer **nonaq** **electrolyte** secondary **battery**
IT Secondary **batteries**
(porous polymer in depolarization layer of **nonaq.** **electrolyte** secondary **battery**)
IT Polyoxyalkylenes, uses
(porous polymer in depolarization layer of **nonaq.** **electrolyte** secondary **battery**)
IT 9011-14-7, PMMA 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 25014-41-9, Polyacrylonitrile **25322-68-3**, PEO
(porous polymer in depolarization layer of **nonaq.** **electrolyte** secondary **battery**)

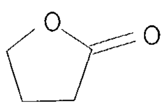
L77 ANSWER 5 OF 24 HCA COPYRIGHT 2004 ACS on STN
137:302681 Ionic conductance behavior of plasticized polymer **electrolytes** containing different plasticizers. Kumar, Manoj; Sekhon, S. S. (Department of Applied Physics, G N D University, Amritsar, 143005, India). Ionics, 8(3 & 4), 223-233 (English) 2002. CODEN: IONIFA. ISSN: 0947-7047. Publisher: Institute for Ionics.
AB The effect of different plasticizers on the properties of PEO-NH4F polymer **electrolytes** was studied. Aprotic org. solvents like propylene carbonate (PC), ethylene carbonate (EC), . **gamma.-butyrolactone** (γ -BL), dimethylacetamide (DMA), DMF, di-Et carbonate (DEC) and di-Me carbonate (DMC) having different values of donor no., dielec. const., **viscosity** etc. were used as plasticizers. The addn. of plasticizer was found to modify the cond. of polymer **electrolytes** by increasing the amorphous content as well as by dissocg. the ion aggregates present in polymer **electrolytes** at higher salt concns. The cond. enhancement

with different plasticizers is closely related to the donor no. of the plasticizer used rather than its dielec. const. The increase in cond. with the addn. of plasticizer further is dependent upon the level of ion assocn. present in the **electrolytes.** The variation of cond. as a function of plasticizer concn. and temp. also was studied and max. cond. of .apprx.10-3 S /cm at room temp. was obtained. X-ray diffraction studies show an increase of amorphous content in polymer **electrolytes** with the addn. of plasticizers.

IT **96-48-0, γ -Butyrolactone**
(ionic conductance behavior of plasticized polymer **electrolytes** contg. different plasticizers)

RN 96-48-0 HCA

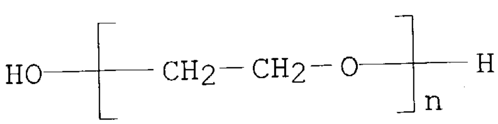
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IT **25322-68-3,** Polyethylene oxide
(ionic conductance behavior of plasticized polymer **electrolytes** contg. different plasticizers)

RN 25322-68-3 HCA

CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



CC 76-1 (Electric Phenomena)
Section cross-reference(s): 36

ST ionic cond polymer **electrolyte** plasticizer

IT Ionic conductivity
Plasticizers
Polymer **electrolytes**
(ionic conductance behavior of plasticized polymer **electrolytes** contg. different plasticizers)

IT **Polyoxyalkylenes, uses**
(ionic conductance behavior of plasticized polymer **electrolytes** contg. different plasticizers)

IT Solvents
(org., plasticizers; ionic conductance behavior of plasticized polymer **electrolytes** contg. different plasticizers)

IT 68-12-2, DMF, uses **96-48-0, γ - Butyrolactone** 96-49-1, Ethylene carbonate 105-58-8,

Diethyl carbonate 108-32-7, Propylene carbonate 127-19-5,
Dimethylacetamide 616-38-6, Dimethyl carbonate
(ionic conductance behavior of plasticized polymer **electrolytes** contg. different plasticizers)

IT 12125-01-8, Ammonium fluoride (NH_4F) **25322-68-3**, Polyethylene oxide
(ionic conductance behavior of plasticized polymer **electrolytes** contg. different plasticizers)

L77 ANSWER 6 OF 24 HCA COPYRIGHT 2004 ACS on STN
137:235229 Polymer **electrolyte** fuel **cell** and its manufacture. Yasumoto, Eiichi; Yoshida, Akihiko; Uchida, Makoto; Morita, Junji; Sugawara, Yasushi; Kanbara, Teruhisa (Matsushita Electric Industrial Co., Ltd., Japan). PCT Int. Appl. WO 2002071516 A1 20020912, 88 pp. DESIGNATED STATES: W: CN, KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2002-JP2044 20020305. PRIORITY: JP 2001-63057 20010307; JP 2001-73730 20010315; JP 2001-84770 20010323.

AB The fuel cell has a H+ conductive polymer **electrolyte** A.C membrane between a pair of electrodes, having a gas diffusion layer supporting a catalyst layer contacting the **electrolyte** membrane, a pair of conductive separators having passages supplying reaction gases to the electrodes, where ≥1 of the electrodes contains a compd. R1O[(C2H4O)n(C3H6O)m]R2 (R1 and R2 = C5-15 alkyl or H, n and m = integer 0-5, and the ethylene oxide units and propylene oxide units are randomly arranged when n and m are >0). The fuel cells are prepd. by: mixing C particles, ≥1 kind of C fibers, a water repelling polymer, and a surfactant contg. the above compd. to form a water repellent layer ink; mixing catalyst supported C particles, a H+ conductive polymer **electrolyte** and a dispersing medium to form a catalyst layer ink; applying the water repellent ink on a conductive porous substrate; evapg. the dispersive medium to form the gas diffusion layer, and applying the catalyst layer ink on the gas diffusion layer to form a catalyst layer; where the catalyst ink a **non-Newtonian** fluid, has viscosities ≥10 Pa.s and ≤ 1 Pa.s at shear rates 0.1/s and 100/s, resp.

IC ICM H01M004-86
ICS H01M004-88

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST polymer **electrolyte** fuel **cell** gas diffusion electrode manuf; polyoxyalkylene surfactant water repellent fuel cell catalytic electrode

IT **Polyoxyalkylenes, uses**
(fluorine- and sulfo-contg., ionomers; catalyst layers contg. proton conductive polymer **electrolytes** and dispersing media for fuel cell electrodes)

IT Fluoropolymers, uses
(polyoxyalkylene-, sulfo-contg., ionomers; catalyst layers contg. proton conductive polymer **electrolytes** and dispersing media for fuel cell electrodes)

IT Ionomers
(polyoxyalkylenes, fluorine- and sulfo-contg.; catalyst layers contg. proton conductive polymer **electrolytes** and dispersing media for fuel cell electrodes)

IT Perfluorocarbons
(sulfonate; catalyst layers contg. proton conductive polymer **electrolytes** and dispersing media for fuel cell electrodes)

IT 7440-06-4, Platinum, uses 7440-18-8, Ruthenium, uses 7440-44-0, Carbon, uses
(catalyst layers contg. proton conductive polymer **electrolytes** and dispersing media for fuel cell electrodes)

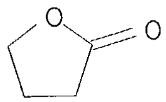
IT 1308-38-9, Chromia, uses 1309-48-4, Magnesia, uses 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 13463-67-7, Titania, uses
(metal oxide additives in electrodes for polymer **electrolyte** fuel **cells**)

L77 ANSWER 7 OF 24 HCA COPYRIGHT 2004 ACS on STN
135:273652 Preparations of gel polymer solid **electrolytes** with improved ionic conductivity and size stability. Zhang, Zhengcheng; Fang, Shibi; Li, Yongjun (Inst. of Chemistry, Chinese Academy of Sciences, Peop. Rep. China). Faming Zhuanli Shenqing Gongkai Shuomingshu CN 1285375 A 20010228, 8 pp. (Chinese). CODEN: CNXXEV. APPLICATION: CN 1999-111590 19990820.

AB The **electrolytes**, used to prepg. solid **electrolyte** film with 100-300 μm thickness for lithium secondary **battery**, comprise: (A) a three dimensional network having internal plasticizing polymer segments, (B) a Li salt, and (C) a polar small mol. plasticizer, wherein A contains polymethylsiloxane or polyoxyalkylene, C is selected from ethylene carbonate, propylene carbonate and butyrolactone, and B is selected from $LiClO_4$, $LiPF_6$ or $LiN(CF_3SO_2)_2$. The **electrolytes** are prepd. by dissolving A, crosslinking agent contg. a triisocyanate, B and C in a ratio of 1:0.2:0.24-0.72:0.5-2.0 in anhyd. THF, mixing with 0.5% dibutyltin dilaurate at 75-95° to obtain a **viscous** liq. followed by curing at 80°.

IT **96-48-0, γ -Butyrolactone**
(plasticizer; prepns. of gel polymer solid **electrolytes** with improved ionic cond. and size stability)

RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IC ICM C08L083-14
ICS C08K005-16; C08J003-24
CC 37-3 (Plastics Manufacture and Processing)
Section cross-reference(s): 76
ST polymethylsiloxane polyoxyalkylene gel polymer solid **electrolyte** prepn; plasticizer lithium salt polymer solid **electrolyte** prepn; **electrolyte** film lithium secondary **battery**
IT Polysiloxanes, preparation
(polyoxyalkylene-polyurethane-; prepns. of gel polymer solid **electrolytes** with improved ionic cond. and size stability)
IT Polyurethanes, preparation
(polyoxyalkylene-siloxane-; prepns. of gel polymer solid **electrolytes** with improved ionic cond. and size stability)
IT **Polyoxyalkylenes, preparation**
(polyurethane-siloxane-; prepns. of gel polymer solid **electrolytes** with improved ionic cond. and size stability)
IT Gelation
Plasticizers
Polymer **electrolytes**
Solid **electrolytes**
Solid state secondary **batteries**
(prepns. of gel polymer solid **electrolytes** with improved ionic cond. and size stability)
IT 7791-03-9, Lithium perchlorate ($LiClO_4$) 21324-40-3, Lithium hexafluorophosphate ($LiPF_6$) 90076-65-6
(**electrolyte;** prepns. of gel polymer solid **electrolytes** with improved ionic cond. and size stability)
IT **96-48-0, γ -Butyrolactone**
96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
(plasticizer; prepns. of gel polymer solid **electrolytes** with improved ionic cond. and size stability)
IT 362600-41-7P
(prepns. of gel polymer solid **electrolytes** with improved ionic cond. and size stability)

L77 ANSWER 8 OF 24 HCA COPYRIGHT 2004 ACS on STN
135:238978 Fluid simulating the rheological properties of biological fluids. Nelson, Karen (Prorheo G.m.b.H., Germany). Eur. Pat. Appl.

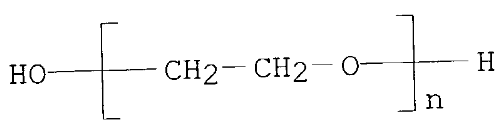
EP 1136824 A1 20010926, 6 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (German). CODEN: EPXXDW. APPLICATION: EP 2000-105817 20000318.

AB A simulant of blood or other biol. fluids which is suitable for long-term use in the testing and assessment of app. and devices consists of a suspension of non-biol. microparticles in a viscoelastic fluid (with **non-Newtonian** viscosity properties) and contains a salt to model physiol. **electrolyte** concns. Thus, nylon microparticles (5 μm) may be used at a concn. of 23% (wt./vol.) together with 1.15% lecithin, 0.25% polyethylene glycol, 0.9% sodium chloride, and 0.03% potassium sorbate.

IT **25322-68-3**, Polyethylene glycol
(fluid simulating rheol. properties of biol. fluids)

RN 25322-68-3 HCA

CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IC ICM G01N033-96

CC 9-16 (Biochemical Methods)

IT Lecithins
Polyoxyalkylenes, uses
(fluid simulating rheol. properties of biol. fluids)

IT 7647-14-5, Sodium chloride, uses 24634-61-5, Potassium sorbate
25322-68-3, Polyethylene glycol
(fluid simulating rheol. properties of biol. fluids)

L77 ANSWER 9 OF 24 HCA COPYRIGHT 2004 ACS on STN

135:20527 Relationship between ionic conductivity of perfluorinated ionomeric membranes and **nonaqueous** solvent properties. Doyle, M.; Lewittes, M. E.; Roelofs, M. G.; Perusich, S. A.; Lowrey, R. E. (DuPont i Technologies, Wilmington, DE, 19880-0024, USA). Journal of Membrane Science, 184(2), 257-273 (English) 2001. CODEN: JMESDO. ISSN: 0376-7388. Publisher: Elsevier Science B.V..

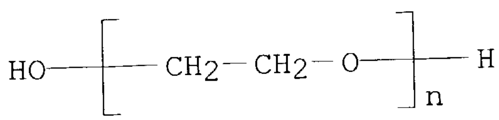
AB Ionic cond. and swelling data are measured for Nafion perfluorinated ionomeric membranes in **nonaq.** solvents and solvent mixts. and correlated with solvent phys. properties. The dependence of ionic cond. on solvent uptake and cation type is examd. for Nafion 117 membranes with a nominal equiv. wt. of 1100 g/equiv. The most important factors detg. ionic cond. in membranes swollen with polar **nonaq.** solvents are the solvent **viscosity**, molar volume, donor properties, and the solvent uptake by the membrane.

Ionic cond. is generally limited by dissocn. of the cation from the fixed anion site indicating that the ionomer fixed anion site basicity is the crit. membrane property. Means for increasing membrane ionic cond. are discussed.

IT **25322-68-3**, PEG
    (**battery** solvent; ionic cond. of perfluorinated ionomeric membranes in)

RN 25322-68-3 HCA

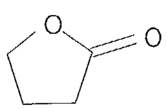
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IT **96-48-0, γ -Butyrolactone**
    (solvent; ionic cond. of perfluorinated ionomeric membranes in)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



CC 38-3 (Plastics Fabrication and Uses)
    Section cross-reference(s): 52

IT **Polyoxyalkylenes, uses**
    (**battery** solvent; ionic cond. of perfluorinated ionomeric membranes in)

IT **Polyoxyalkylenes, uses**
    (fluorine- and sulfo-contg., ionomers, Nafion; ionic cond. of perfluorinated ionomeric membranes and **nonaq.** solvent properties)

IT Ionic conductivity
    Membranes, nonbiological
    Molar volume
    Primary **batteries**
    Swelling, physical
    Viscosity
    (ionic cond. of perfluorinated ionomeric membranes and **nonaq.** solvent properties)

IT Fluoropolymers, uses
    (polyoxyalkylene-, sulfo-contg., ionomers, Nafion; ionic cond. of perfluorinated ionomeric membranes and **nonaq.** solvent properties)

IT Ionomers

(polyoxyalkylenes, fluorine- and sulfo-contg., Nafion; ionic cond. of perfluorinated ionomeric membranes and **nonaq.** solvent properties)

IT 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate 108-32-7, Propylene carbonate 109-99-9, THF, uses 111-15-9, 2-Ethoxyethyl acetate 141-78-6, Ethyl acetate, uses 616-38-6, Dimethyl carbonate 616-42-2, Dimethyl sulfite 646-06-0, 1,3-Dioxolane 1003-38-9, 2,5-Dimethyltetrahydrofuran 1634-04-4, tert-Butyl methyl ether 3330-14-1 6338-68-7 **25322-68-3**, PEG 73506-93-1, Diethoxyethane 74733-99-6, 2-(2-(2-Methoxyethoxy)ethoxy)-1,3-dioxolane 130221-78-2 163702-07-6
(**battery** solvent; ionic cond. of perfluorinated ionomeric membranes in)

IT 66796-30-3, Nafion 117 77950-55-1, Nafion 115
(ionic cond. of perfluorinated ionomeric membranes and **nonaq.** solvent properties)

IT 66796-30-3, Nafion 117
(ionic cond. of perfluorinated ionomeric membranes and **nonaq.** solvent properties)

IT 67-56-1, Methanol, uses 67-64-1, Acetone, uses 67-68-5, DMSO, uses 68-12-2, DMF, uses 78-40-0, Triethyl phosphate 96-35-5, Methyl glycolate **96-48-0, γ -Butyrolactone** 96-49-1, Ethylene carbonate 109-73-9, Butylamine, uses 110-71-4, DME 123-39-7, N-Methylformamide 127-19-5, DMA 623-50-7, Ethyl glycolate 760-79-2, N,N-Dimethylbutyramide 872-50-4, NMP, uses 6939-12-4, 3-Methyl sydnone 7226-23-5 7397-62-8, Butyl glycolate 7732-18-5, Water, uses 52922-49-3, Dibutylacetamide 57303-25-0, N,N-Dibutyldecanamide
(solvent; ionic cond. of perfluorinated ionomeric membranes in)

L77 ANSWER 10 OF 24 HCA COPYRIGHT 2004 ACS on STN

132:200267 Diffusion coefficients of ferricyanide ions in polymeric solutions - comparison of different experimental methods. Legrand, J.; Dumont, E.; Comiti, J.; Fayolle, F. (Laboratoire de Genie des Procedes, UPRES EA 1152, Universite de Nantes, CRTT, Universite de Nantes, Saint-Nazaire, 44602, Fr.). Electrochimica Acta, 45(11), 1791-1803 (English) 2000. CODEN: ELCAAV. ISSN: 0013-4686. Publisher: Elsevier Science Ltd..

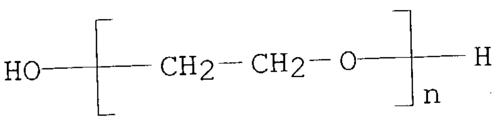
AB The mol. diffusion of ferricyanide ions in polymeric Newtonian and **non-Newtonian** soln. has been studied at 25°C with different exptl. methods: rotating-disk flow, Couette-flow and unsteady diffusion. It is shown that the Levich equation established for the detn. of diffusion coeffs. with the rotating-disc electrode method cannot be applied for Reynolds no. values less than 30 for Newtonian and power-law fluids, when the momentum boundary layer thickness is of the same order of magnitude

than the disk radius. The unsteady diffusion method seems to be the most suitable technique to det. the diffusion coeff. in highly or viscous **non-Newtonian electrolytes**.
For the studied polymer soln., it is shown that the decrease of diffusion coeff. is much slower that the increase in dynamic viscosity. Then, the classical Stokes-Einstein equation, $D\mu/T$ = cst, is not valid for **electrolyte** soln. with high viscosity.

IT **25322-68-3**
(detn. of diffusion coeffs. of ferricyanide ions in polymeric solns.)

RN 25322-68-3 HCA

CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)
Section cross-reference(s): 65

IT **Electrolytic cells**
(Couette-flow cell for detn. of diffusion coeffs. of ferricyanide ions in polymeric solns.)

IT **Polyoxyalkylenes, uses**
(detn. of diffusion coeffs. of ferricyanide ions in polymeric solns.)

IT 9000-30-0, Guar 9004-32-4, Cellulose, carboxymethyl ether
25322-68-3
(detn. of diffusion coeffs. of ferricyanide ions in polymeric solns.)

L77 ANSWER 11 OF 24 HCA COPYRIGHT 2004 ACS on STN

132:24877 Multifunctional reactive monomers for safety protection of **nonaqueous batteries**. Skotheim, Terje A.; Gorkovenko, Alexander; Gavrilov, Alexei B.; Kovalev, Igor P. (Moltech Corporation, USA). PCT Int. Appl. WO 9965101 A1 19991216, 69 pp. DESIGNATED STATES: W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US12167 19990528. PRIORITY: US 1998-93528 19980608.

AB The present invention pertains to **nonaq**.

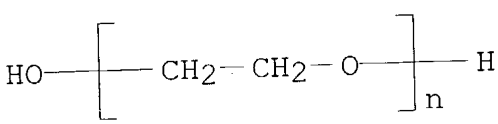
6,482,545

electrolytes which comprise (a) one or more solvent; (b) one or more ionic salt; and, (c) a multifunctional monomer comprising two or more unsatd. aliph. reactive moieties per mol. The multifunctional monomer is sol. in the solvent(s), the monomer rapidly polymerizes when the **electrolyte** is heated to an initiation temp. >100°, thereby increasing the **viscosity** and internal resistivity of the **electrolyte**. When incorporated into a **nonaq. electrolyte**, the multifunctional reactive monomer improves the safety of **batteries** by rapidly polymg. at elevated temps. to increase the **viscosity** and internal resistivity of the **electrolyte**. The present invention also pertains to **batteries** comprising such **nonaq. electrolytes**, methods of making such **nonaq. electrolytes** and **batteries**, and methods for increasing the safety of a **battery**.

IT **25322-68-3**, Polyethylene oxide
(binder; multifunctional reactive monomers for safety protection of **nonaq. batteries**)

RN 25322-68-3 HCA

CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IC ICM H01M010-42
ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST **battery electrolyte** multifunctional reactive monomer; safety **battery electrolyte** multifunctional reactive monomer

IT Polyoxyalkylenes, uses
(binder; multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT Polymers, uses
(carbon-sulfur; multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT **Battery** anodes
Battery cathodes
Battery electrolytes
Conducting polymers
Polymerization catalysts
Polymerization inhibitors
Safety

Secondary **batteries**
Secondary **battery** separators
(multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT Transition metal chalcogenides
(multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT Carbon black, uses
(multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT Siloxanes (nonpolymeric)
(multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT Sulfones
(multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT Polyolefins
(separator; multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT Amines, uses
(tertiary, polymn. initiator; multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT **25322-68-3**, Polyethylene oxide
(binder; multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT 7439-93-2, Lithium, uses 7440-44-0D, Carbon, intercalation compd., with lithium, uses 7704-34-9, Sulfur, uses 9080-49-3, Polysulfide 12798-95-7 39448-96-9, Graphite lithium 53680-59-4
(multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT 764-78-3, Ethylene glycol divinyl ether 764-99-8, DiEthylene glycol divinyl ether 765-12-8, TriEthylene glycol divinyl ether 3891-33-6, 1,4-Butanediol divinyl ether 17351-75-6, 1,4-Cyclohexanedimethanol divinyl ether 83416-06-2, TetraEthylene glycol divinyl ether
(multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT 75-05-8, Acetonitrile, uses 79-16-3, n-Methyl acetamide 95-47-6, o-Xylene, uses 103-44-6, 2-Ethylhexyl vinyl ether 110-71-4, Glyme 111-34-2, Butylvinyl ether 126-33-0, Sulfolane 556-65-0, Lithium thiocyanate 616-45-5D, Pyrrolidone, N-alkyl deriv. 646-06-0, Dioxolane 1330-20-7, Xylene, uses 2182-55-0, Cyclohexyl vinyl ether 2550-62-1, Lithium methanesulfonate 7550-35-8, Lithium bromide 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 90076-65-6 132404-42-3

137170-69-5 222611-25-8 251903-02-3
(multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT 1344-28-1, Alumina, uses
(multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT 17341-24-1, uses
(polymn. initiator; multifunctional reactive monomers for safety protection of **nonaq. batteries**)

IT 25085-53-4, Celgard 2500
(separator; multifunctional reactive monomers for safety protection of **nonaq. batteries**)

L77 ANSWER 12 OF 24 HCA COPYRIGHT 2004 ACS on STN

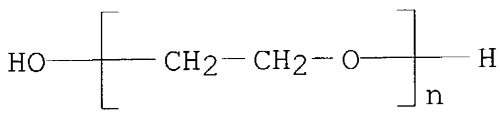
131:288823 The measurement of self-diffusion coefficients of various species by the pulse gradient-field spin-echo NMR method. The motions of ions in the **electrolytes** for lithium **batteries**. Hayamizu, Kikuko; Aihara, Yuichi (Natl. Inst. Mater. Chem. Res., Tsukuba, 305-8565, Japan). Materia, 38(7), 555-558 (Japanese) 1999. CODEN: MTERE2. ISSN: 1340-2625. Publisher: Nippon Kinzoku Gakkai.

AB The title PGSE-NMR method was applied to the measurements of self-diffusion coeff. (D) of ions in the **electrolytes** for Li **batteries**. The NMR measurement nuclei were 7Li for Li+, 19F for N(SO2CF3)- and 1H for solvents used for the **batteries**, resp. The measured D values of 14 org. solvents and Li+ and N(SO2CF3)2- in their solvents were inversely proportional to the solvent **viscosities** according to the Stokes-Einstein equation. The D ratio of Li+ to the solvent was >2 in ethylene carbonate and γ **-butyrolactone**, indicating 2 mols. of the solvents can solvate Li+ and that for N(SO2CF3)2- was 1.2 in every solvents, indicating the less solvation to the anion. The molar elec. conds. of LiN(SO2CF3)2 evaluated from the D values in org. solvents using the Nernst-Einstein equation were different from those obtained by electrochem. a.c. method. The differences are attributed to the dissocn. degrees of the **electrolyte**. The PGSE-NMR method was also applied to polymer **electrolyte** gels using poly(ethylene oxide) as a polymer matrix.

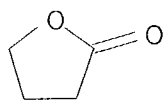
IT **25322-68-3**
(**electrolyte**; measurements of self-diffusion coeff. of ions in **electrolytes** for Li **batteries**)

RN 25322-68-3 HCA

CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IT **96-48-0**
(measurements of self-diffusion coeff. of ions in **electrolytes** for Li **batteries**)
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 65
ST lithium **battery electrolyte** ion motion; self diffusion coeff lithium **battery electrolyte**
IT **Polyoxyalkylenes, uses**
(**electrolyte;** measurements of self-diffusion coeff. of ions in **electrolytes** for Li **batteries**)
IT **Battery electrolytes**
Electric conductivity
(measurements of self-diffusion coeff. of ions in **electrolytes** for Li **batteries**)
IT Diffusion
(self-; measurements of self-diffusion coeff. of ions in **electrolytes** for Li **batteries**)
IT **25322-68-3**
(**electrolyte;** measurements of self-diffusion coeff. of ions in **electrolytes** for Li **batteries**)
IT **96-48-0** 96-49-1, Ethylene carbonate 108-29-2, γ-Valerolactone 108-32-7, Propylene carbonate 109-99-9, uses 110-71-4 111-96-6, Diglyme 112-49-2, Triglyme 123-91-1, 1,4-Dioxane, uses 616-38-6, Dimethyl carbonate 872-50-4, n-Methylpyrrolidone, uses 4437-85-8, Butylene carbonate
(measurements of self-diffusion coeff. of ions in **electrolytes** for Li **batteries**)
IT 17341-24-1, Lithium(1+), processes 98837-98-0
(measurements of self-diffusion coeff. of ions in **electrolytes** for Li **batteries**)

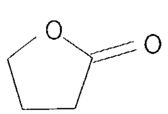
L77 ANSWER 13 OF 24 HCA
130:189931 Easy Preparation and Useful Character of Organogel **Electrolytes** Based on Low Molecular Weight Gelator.

Hanabusa, Kenji; Hiratsuka, Kaori; Kimura, Mutsumi; Shirai, Hirofusa (Department of Functional Polymer Science Faculty of Textile Science Technology, Shinshu University, Ueda, 386-8567, Japan). Chemistry of Materials, 11(3), 649-655 (English) 1999. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

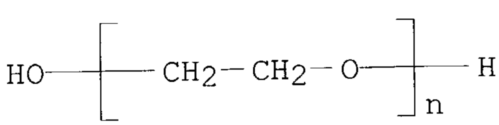
AB Using N-carbobenzyloxy-L-isoleucylaminooctadecane as a low mol. wt. gelator for polar solvents, organogel **electrolytes** were prepd. from supporting **electrolyte** and a polar solvent such as DMF, DMSO, and PC by phys. gelation. The ionic cond. of the prepd. organogel **electrolytes** decreased very slightly with increasing concn. of gelator, while the gel strength drastically increased with increasing concn. The organogel prepd. from DMF exhibited relatively high ionic cond., interpreted due to the high mobility of carrier ions in the low-**viscosity** DMF. Arrhenius plots of ionic conductivities of organogel **electrolytes** indicate that the behavior of supporting **electrolytes** in the organogels is essentially similar to that in the isotropic soln., and the ionic mobility of supporting **electrolytes** is scarcely affected by the gelator mols. The optimal concn. of supporting **electrolytes** in organogel **electrolytes** to achieve both high cond. and high gel strength was 0.05-0.2 M. The addn. of PEG to organogel **electrolytes** markedly raised the gel strength without decreasing ionic cond.

IT **96-48-0**, γ **-Butyrolactone**
25322-68-3, Polyethylene glycol
(easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)

RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



RN 25322-68-3 HCA
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



CC 76-2 (Electric Phenomena)
Section cross-reference(s): 72
ST organogel **electrolyte** concd prepn gelator

carbobenzyloxyisoleucylaminooctadecane polar solvent
IT Optimization
(concn. of **electrolytes**; easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)
IT Gelation agents
(easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)
IT **Polyoxyalkylenes, properties**
(easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)
IT Polar solvents
(gelator for; easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)
IT Electric current carriers
(ions, high mobility of; easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)
IT Ionic conductivity
(organogel **electrolytes**; easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)
IT **Electrolytes**
(organogel; easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)
IT Gels
(strength of; easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)
IT 212840-68-1
(Z-L-Ile-NHC18H37 gelator; easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)
IT 67-56-1, Methanol, properties 67-63-0, 2-Propanol, properties 67-64-1, Acetone, properties 71-23-8, 1-Propanol, properties 71-36-3, 1-Butanol, properties 75-05-8, Acetonitrile, properties 78-93-3, 2-Butanone, properties **96-48-0, γ-Butyrolactone** 141-78-6, Ethyl acetate, properties **25322-68-3**, Polyethylene glycol
(easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)
IT 1923-70-2, Tetra-n-butylammonium perchlorate 7791-03-9, Lithium perchlorate (LiClO4)
(**electrolyte**; easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)
IT 67-68-5, Dimethyl sulfoxide, properties 68-12-2, Dimethyl formamide, properties
(polar solvent; easy prepn. and useful character of organogel **electrolytes** based on low mol. wt. gelator)

L77 ANSWER 14 OF 24 HCA

130:54864 **Nonaqueous** solid-**electrolyte** **batteries** with electrodes containing phosphoric acid compounds. Inamasu, Tokuo (Yuasa Battery Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 10312789 A2 19981124 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-120411 19970512.

AB The title **batteries** use (1) solid **electrolytes** dissolved with supporting **electrolytes** and (2) Li-intercalating active mass contg. phosphoric acid compds. The **batteries** are lightwt., and have long cycle life and leakage prevention.

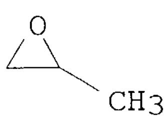
IT **9003-11-6D**, Ethylene oxide-propylene oxide copolymer, triol derivs., acrylates, lithium complexes
(Li-intercalating electrodes contg. phosphoric acid compds. for **nonaq.** solid-**electrolyte batteries**)

RN 9003-11-6 HCA

CN Oxirane, methyl-, polymer with oxirane (9CI) (CA INDEX NAME)

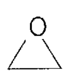
CM 1

CRN 75-56-9
CMF C3 H6 O



CM 2

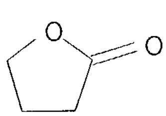
CRN 75-21-8
CMF C2 H4 O



IT **96-48-0**, γ **-Butyrolactone**
(**electrolyte** solvent; Li-intercalating electrodes contg. phosphoric acid compds. for **nonaq.** solid-**electrolyte batteries**)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M004-02
ICS H01M004-58; H01M006-18; H01M006-22; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **nonaq** solid **electrolyte battery;**
phosphoric acid compd electrode **battery**
IT **Battery** electrodes
(Li-intercalating electrodes contg. phosphoric acid compds. for **nonaq.** solid-**electrolyte batteries**)
IT Polyoxyalkylenes, uses
(acrylic, lithium complexes; Li-intercalating electrodes contg. phosphoric acid compds. for **nonaq.** solid-**electrolyte batteries**)
IT Ionic conductors
(polymeric; Li-intercalating electrodes contg. phosphoric acid compds. for **nonaq.** solid-**electrolyte batteries**)
IT Acrylic polymers, uses
(polyoxyalkylene-, lithium complexes; Li-intercalating electrodes contg. phosphoric acid compds. for **nonaq.** solid-**electrolyte batteries**)
IT 79-10-7D, Acrylic acid, esters with ethylene oxide-propylene oxide copolymer triol derivs., lithium complexes 7439-93-2D, Lithium, acrylic polyoxyalkylene complexes, uses **9003-11-6D,** Ethylene oxide-propylene oxide copolymer, triol derivs., acrylates, lithium complexes 10045-86-0, Iron phosphate 80164-51-8D, lithium complexes
(Li-intercalating electrodes contg. phosphoric acid compds. for **nonaq.** solid-**electrolyte batteries**)
IT **96-48-0, γ -Butyrolactone**
(**electrolyte** solvent; Li-intercalating electrodes contg. phosphoric acid compds. for **nonaq.** solid-**electrolyte batteries**)
IT 14283-07-9, Lithium tetrafluoroborate
(**electrolyte;** Li-intercalating electrodes contg. phosphoric acid compds. for **nonaq.** solid-**electrolyte batteries**)

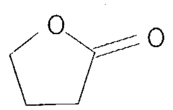
L77 ANSWER 15 OF 24 HCA COPYRIGHT 2004 ACS on STN
127:7096 **Nonaqueous electrolyte** secondary **battery** and its manufacture. Inukai, Tadashi; Uno, Keiichi; Kurita, Tomoharu; Yamaguchi, Hiroki; Narisawa, Haruhiko (Toyobo Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09073904 A2 19970318 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-226289 19950904.
AB Claimed **batteries** comprise polyester resins having reduced **viscosity** ≥0.3 dL/g as binders for anodes and

cathodes, where the anode active mass contains 3-20 wt.% binders. Claimed process comprises coating pastes contg. C materials and binder resins dispersed in solvents contg. N-methyl-2-pyrrolidone, . **gamma.-butyrolactone**, cyclohexanone, and/or xylene on metal foils and drying to give anode mass layers. The active mass has high dispersibility and resulting **batteries** high energy d. and long cycle life.

IT **96-48-0, γ -Butyrolactone**
(solvent; active mass contg. polyester resins and its manuf. for **nonaq. batteries**)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M004-62
ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST **nonaq battery** electrode polyester resin binder

IT **Battery** anodes
Battery cathodes
Binders
(active mass contg. polyester resins and its manuf. for **nonaq. batteries**)

IT Petroleum pitch
(fired, anodes; active mass contg. polyester resins and its manuf. for **nonaq. batteries**)

IT Secondary **batteries**
(lithium; active mass contg. polyester resins and its manuf. for **nonaq. batteries**)

IT **Polyoxyalkylenes, uses**
Polyoxyalkylenes, uses
(polyester-, binders; active mass contg. polyester resins and its manuf. for **nonaq. batteries**)

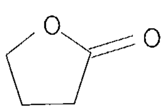
IT Polyesters, uses
Polyesters, uses
(polyoxyalkylene-, binders; active mass contg. polyester resins and its manuf. for **nonaq. batteries**)

IT 26591-41-3P, 1,4-Butanediol-1,4-cyclohexanedicarboxylic acid-terephthalic acid copolymer 189286-75-7P 189286-76-8P
(binder; active mass contg. polyester resins and its manuf. for **nonaq. batteries**)

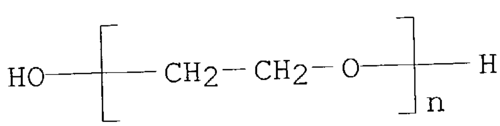
IT **96-48-0, γ -Butyrolactone**
108-94-1, Cyclohexanone, uses 872-50-4, N-Methyl-2-pyrrolidone,

uses 1330-20-7, Xylene, uses
(solvent; active mass contg. polyester resins and its manuf. for **nonaq. batteries**)

L77 ANSWER 16 OF 24 HCA COPYRIGHT 2004 ACS on STN
126:77522 Gel **electrolytes** for lithium **batteries**.
Aihara, Juichi (Yuasa Battery Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 08298126 A2 19961112 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1995-104489 19950428.
AB The gel **electrolytes** are composed of a mixt. contg. a polymer and an org. **electrolyte** soln. contg. . **gamma.-butyrolactone** and cyclic (carbonate) esters. The gel may be formed by crosslinking between the polymer and the ester contg. ethylene oxide or propylene oxide units. The **electrolytes** have good low-temp. properties.
IT **96-48-0, γ -Butyrolactone**
(γ **-butyrolactone** contg. gel **electrolytes** from polymers and cyclic esters for lithium **batteries**)
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



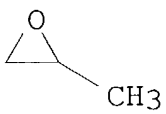
IT **25322-68-3D**, trifunctional acrylate **106392-12-5**, Ethylene oxide-propylene oxide block copolymer
(γ **-butyrolactone** contg. gel **electrolytes** from polymers and cyclic esters for lithium **batteries**)
RN 25322-68-3 HCA
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



RN 106392-12-5 HCA
CN Oxirane, methyl-, polymer with oxirane, block (9CI) (CA INDEX NAME)

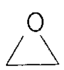
CM 1

CRN 75-56-9
CMF C3 H6 O



CM 2

CRN 75-21-8
CMF C2 H4 O

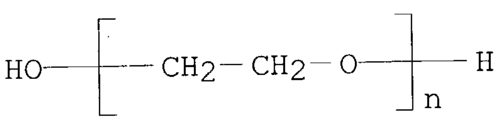


IC ICM H01M006-22
ICS C08F299-02; C08K005-101; C08L071-02; H01M006-16; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **battery** gel **electrolyte** polymer ester
butyrolactone
IT Polyoxyalkylenes, uses
(trifunctional acrylate; γ **-butyrolactone**
contg. gel **electrolytes** from polymers and cyclic esters
for lithium **batteries**)
IT **Battery electrolytes**
(γ **-butyrolactone** contg. gel
electrolytes from polymers and cyclic esters for lithium
batteries)
IT Lactones
(γ **-butyrolactone** contg. gel
electrolytes from polymers and cyclic esters for lithium
batteries)
IT 463-79-6D, Carbonic acid, esters, uses
(cyclic; γ **-butyrolactone** contg. gel
electrolytes from polymers and cyclic esters for lithium
batteries)
IT **96-48-0**, γ **-Butyrolactone**
(γ **-butyrolactone** contg. gel
electrolytes from polymers and cyclic esters for lithium
batteries)
IT **25322-68-3D**, trifunctional acrylate **106392-12-5**,
Ethylene oxide-propylene oxide block copolymer
(γ **-butyrolactone** contg. gel
electrolytes from polymers and cyclic esters for lithium
batteries)

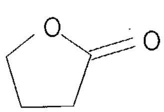
L77 ANSWER 17 OF 24 HCA COPYRIGHT 2004 ACS on STN
126:51022 Gel-forming system for use as wound dressings. Fox, Adrian S.; Allen, Amy E. (Nepera, Inc., USA). U.S. US 5578661 A 19961126, 8 pp. (English). CODEN: USXXAM. APPLICATION: US 1994-221159 19940331.

AB A gel-forming system comprising an aq. mixt. of a first component of at least one water-sol. polymer in an amt. sufficient to increase the initial **viscosity** of the mixt. and impart adhesion properties thereto; a second component of an acid-contg. polymer; a third component of an amino-contg. polymer; and water. This system has a pH 5.5-8.5 and the second and third components are each present in sufficient amts. which, in combination, increase the cohesiveness of the mixt. over time, such that the mixt. can be initially combined in a relatively fluid state and subsequently forms a cohesive gel structure. This system is useful as a wound dressing for deep wound cavities because the gel protects the wound and permits healing, does not interfere with new tissue growth or development, is capable of absorbing significant amts. of wound exudate, and has sufficient cohesive strength for subsequent removal from the cavity as an integral plug without interrupting the healing process. For example, a gel-forming compn. contained ethylene-maleic anhydride copolymer 0.5, N,O-carboxymethyl chitosan 2.5, PVP 10, polyethylene oxide 0.5, and NaOH 0.16 %.

IT **25322-68-3**, Polyethylene oxide
(gel-forming system for use as wound dressings)
RN 25322-68-3 HCA
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IT **96-48-0**, γ-Butyryl lactone
(humectant; gel-forming system for use as wound dressings)
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IC ICM C08L005-00
ICS C08L039-06; C08L071-02
NCL 524027000
CC 63-7 (Pharmaceuticals)

IT **Electrolytes**
(gel-forming system for use as wound dressings)

IT 526-95-4D, Gluconic acid, derivs. 9000-07-1, Carrageenan 9002-18-0, Agar 9003-01-4, Polyacrylic acid 9003-39-8, PVP 9004-61-9, Hyaluronic acid 9005-32-7, Alginic acid 9005-49-6, Heparin, biological studies 9006-26-2, Ethylene-maleic anhydride copolymer 9011-16-9, Maleic anhydride-methyl vinyl ether copolymer 9012-76-4, Chitosan 25104-18-1, Poly(L-lysine) **25322-68-3**, Polyethylene oxide 28062-44-4, Acrylic acid-vinylpyrrolidone copolymer 38000-06-5, Poly(L-lysine) 62229-50-9, Epidermal growth factor 83512-85-0, N-Carboxymethylchitosan 107043-88-9, N,O-Carboxymethylchitosan
(gel-forming system for use as wound dressings)

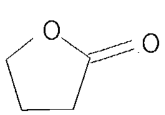
IT 56-81-5, Glycerol, biological studies **96-48-0**, γ-Butyryl lactone 97-64-3, Ethyl lactate 123-42-2, Diacetone alcohol 872-50-4, N-Methylpyrrolidone, biological studies 2687-91-4, N-Ethylpyrrolidone
(humectant; gel-forming system for use as wound dressings)

L77 ANSWER 18 OF 24 HCA COPYRIGHT 2004 ACS on STN
123:204407 Method for preparing and intercalating alkali metal ions into carbon electrodes. Doeff, Marca M.; Ma, Yanping; Visco, Steven J.; Dejonghe, Lutgard (University of California, USA). U.S. US 5443601 A 19950822, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1993-55709 19930503.

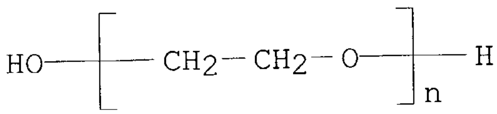
AB A low cost, relatively flexible, C electrode for a secondary **battery** is prepd. by mixing a C powder (e.g., graphite, pitch), an ion conducting polymer (e.g., gelled PEO), an alkali metal salt (e.g., Li triflate, NaI), and a carbon dispersant (e.g., POE lauryl ether) into a dry mixt. to which solvent (e.g., propylene carbonate) is added. The mixt. is applied onto a dry surface, the solvent is evapd., and the electrode is removed from the drying sheet and cut into desired shapes, and then dried thoroughly in a vacuum.

IT **96-48-0, γ -Butyrolactone**
25322-68-3, Polyethylene oxide **25322-68-3D**, phosphate-linked polymers **106392-12-5**, Ethylene oxide propylene oxide block copolymer
(electrode; intercalating alkali metal ions such as Na and Li into carbon electrodes)

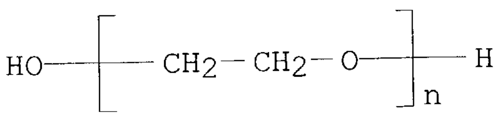
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



RN 25322-68-3 HCA
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



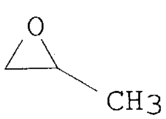
RN 25322-68-3 HCA
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



RN 106392-12-5 HCA
CN Oxirane, methyl-, polymer with oxirane, block (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9
CMF C3 H6 O



CM 2

CRN 75-21-8
CMF C2 H4 O

IC ICM H01M006-18
ICS H01M004-62
NCL 029623500
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT Electrodes
(**battery**, secondary **batteries**; intercalating alkali metal ions such as Na and Li into carbon electrodes)

IT 68-12-2, Dmf, uses 71-43-2D, Benzene, pyrolyzed **96-48-0**, **γ -Butyrolactone** 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 127-19-5, Dma 7782-42-5, Graphite, uses 24937-79-9, Pvdf 24991-55-7, PEGDME 25014-41-9, Pan **25322-68-3**, Polyethylene oxide **25322-68-3D**, phosphate-linked polymers 25322-69-4 **106392-12-5**, Ethylene oxide propylene oxide block copolymer
(electrode; intercalating alkali metal ions such as Na and Li into carbon electrodes)

L77 ANSWER 19 OF 24 HCA COPYRIGHT 2004 ACS on STN
121:137503 An ionic conductive polymer **electrolyte**. Kanbara, Teruhisa; Takeyama, Kenichi; Tsubaki, Yuichiro (Matsushita Electric Industrial Co., Ltd., Japan). Eur. Pat. Appl. EP 579921 A1 19940126, 37 pp. DESIGNATED STATES: R: DE, DK, FR, GB. (English). CODEN: EPXXDW. APPLICATION: EP 1993-108097 19930518. PRIORITY: JP 1992-196754 19920723; JP 1992-348114 19921228.

AB The **electrolyte** contains a polymer having an ether-type oxygen, esp. a random ethylene oxide-propylene oxide copolymer, and a plasticizer. The plasticizer is ≥1 compd. described by the formulas HO(C2H4O)nH where n is 2, 3, 4 or 5; RO(C2H4O)nH where R is CH3, C2H5, C3H7 or C4H9 and n is 3, 4 or 5; R1O(C2H4O)nR2 where R1=R2=CH3 and n is 4, 5 or 6 or R1=R2=C2H5 and n is 4, 5 or 6 or R1=R2=C3H7 and n is 3, 4, 5 or 6 or R1=R2=C4H9 and n is 2, 3, 4 or 5 or R1=CH3, R2=C4H9, and n is 4, 5 or 6; R1O(C2H4O)n(C3H6O)mH where n+m is 2, 3, 4 or 5 and R1=CH3, C2H5, C3H7 or C4H9; and R1O(C2H4O)n(C3H6O)mR2 where n+m is 2, 3, 4, or 5 and R1=R2=CH3.

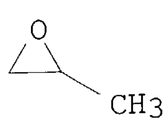
IT **9003-11-6**, Ethylene oxide-propylene oxide copolymer
(**electrolyte** contg. plasticizers and)

RN 9003-11-6 HCA

CN Oxirane, methyl-, polymer with oxirane (9CI) (CA INDEX NAME)

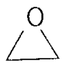
CM 1

CRN 75-56-9
CMF C3 H6 O

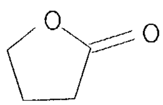


CM 2

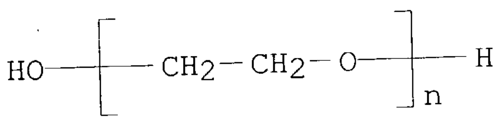
CRN 75-21-8
CMF C2 H4 O



IT 96-48-0, γ -**Butyrolactone**
25322-68-3, Polyethylene oxide
(plasticizer, **electrolyte** contg. random polyethers and)
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



RN 25322-68-3 HCA
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IC ICM H01M006-18
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **electrolyte** polymer polyether plasticizer
IT Polyethers, uses
(crosslinked, **electrolyte** contg. random, and plasticizers)
IT **Battery electrolytes**
(ionic conductive polymeric, contg. plasticizers)
IT **9003-11-6**, Ethylene oxide-propylene oxide copolymer
9082-00-2, Ethylene oxide-propylene oxide copolymer, glycerol ether
(**electrolyte** contg. plasticizers and)
IT 338-38-5, Tetrapropylammonium tetrafluoroborate 429-06-1, Tetraethylammonium tetrafluoroborate 429-07-2, Tetraethylammonium hexafluorophosphate 429-42-5, Tetrabutylammonium fluoroborate 558-32-7 661-36-9, Tetramethylammonium tetrafluoroborate 1493-13-6D, Trifluoromethanesulfonic acid, tetraalkylphosphonium salts 1813-60-1, Tetrabutylphosphoniumtetrafluoroborate 1863-63-4, Ammonium benzoate 2567-83-1, Tetraethylammonium perchlorate 5574-97-0, Tetrabutylammonium phosphate 7439-93-2D, Lithium, salts 7601-90-3D, Perchloric acid, tetraalkylphosphonium salts 7790-98-9D, Ammonium perchlorate, tetraalkyl derivs. 12110-21-3, Tetrapropylammonium hexafluorophosphate 13826-83-0D, Ammonium tetrafluoroborate, tetraalkyl derivs. 14283-07-9, Lithium fluoroborate 14874-70-5D, Tetrafluoroborate, tetraalkylphosphonium

salts 16909-22-1, Tetraethylammonium benzoate 16919-18-9D, Hexafluorophosphate, tetraalkylphosphonium salts 16941-11-0D, Ammonium hexafluorophosphate, tetraalkyl derivs. 18819-89-1, Tetrabutylammonium benzoate 19090-60-9, Ammonium adipate 19443-40-4, Ammonium borodisalicylate 21324-40-3, Lithium hexafluorophosphate 35895-70-6, Tetrabutyl ammonium trifluoromethanesulfonate 38542-94-8D, Ammonium trifluoromethanesulfonate, tetraalkyl derivs. 41606-95-5, Tetraethylammonium phthalate 53123-48-1 68874-26-0 82169-85-5, Ammonium azelate 106362-67-8 111754-37-1, Tetraethylammonium maleate 111754-40-6, Tetraethylammonium maleate 111928-06-4, Tetraethylphosphoniumtrifluoromethanesulfonate 114480-39-6 114609-41-5, Tetraethylphosphonium phthalate 129024-43-7
(**electrolyte** contg. random polyethers and plasticizers and)

IT **96-48-0, γ -Butyrolactone**
96-49-1, Ethylene carbonate 107-21-1, Monoethylene glycol, uses 108-32-7, Propylene carbonate 112-27-6, Triethylene glycol 112-34-5, Diethylene glycol monobutyl ether 112-35-6, Triethylene glycol monomethyl ether 112-50-5, Triethylene glycol monoethyl ether 112-60-7, Tetraethylene glycol 112-73-2, Diethylene glycol dibutyl ether 112-98-1, Tetraethylene glycol dibutyl ether 123-91-1, Diethylene oxide, uses 143-22-6, Triethylene glycol monobutyl ether 143-24-8, Tetraethylene glycol dimethyl ether 1559-34-8, Tetraethylene glycol monobutyl ether 4353-28-0, Tetraethylene glycol diethyl ether 5650-20-4, Tetraethylene glycol monoethyl ether 9004-74-4, Polyethylene oxide, monomethyl ether 9004-77-7, Polyethylene glycol monobutyl ether 9038-95-3 9063-06-3 23305-64-8, Triethylene glycol monopropyl ether 23307-36-0, 3,6,9,12-Tetraoxapentadecan-1-ol 23783-42-8, Tetraethylene glycol monomethyl ether 24991-55-7, Polyethylene glycol dimethyl ether **25322-68-3**, Polyethylene oxide 27879-07-8, Polyethylene oxide, monoethyl ether 28830-99-1, 4,7,10,13,16-Pentaoxanonadecane 31885-97-9, Polyethylene glycol dibutyl ether 34410-16-7, Polyethylene oxide, monopropyl ether 50958-06-0 53609-62-4, Polyethylene glycol diethyl ether 54692-61-4 55068-41-2 60314-50-3, Polyethylene glycol dipropyl ether 61419-46-3 63512-36-7, Triethylene glycol dibutyl ether 76058-48-5, Tetraethylene glycol butyl methyl ether 77318-45-7, 4,7,10,13-Tetraoxahexadecane 80730-57-0
(plasticizer, **electrolyte** contg. random polyethers and)

L77 ANSWER 20 OF 24 HCA COPYRIGHT 2004 ACS on STN
119:164029 Secondary **battery** with solid **electrolyte**.
Simon, Bernard; Boeuve, Jean Pierre (Alcatel Alsthom Compagnie Generale d'Electricite, Fr.). Eur. Pat. Appl. EP 517069 A1 19921209, 4 pp. DESIGNATED STATES: R: CH, DE, ES, FR, GB, IT, LI, NL, SE. (French). CODEN: EPXXDW. APPLICATION: EP 1992-108841

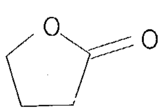
19920526. PRIORITY: FR 1991-6589 19910531.

AB The **battery** has an **electrolyte** of a polymer contg. a Li salt and a dipolar aprotic solvent, an anode of a Li-intercalatable carbonaceous material and the **electrolyte**, and a cathode of a material having a high redox potential, the **electrolyte**, and a conductive powder. The carbonaceous material is at least on the surface less cryst. than graphite and impermeable to solvent, while permitting the diffusion of Li. The carbonaceous material is selected from coke, graphitized carbon fibers, and pyrolytic C, and it contains a surface layer obtained by chem. vapor deposition using hydrocarbons or by carbonization of a polymer film. The salt anions are selected from AsF6-, BF4-, PF6-, CF3SO3-, ClO4-, BPh4-, N(CF3SO2)2, and SCN-; the **nonaq.** solvent is selected from ethylene carbonate, propylene carbonate, THF, etc.; and the polymer is selected from PEO, poly(propylene oxide) and ethylene oxide-propylene oxide copolymer. The cathode active material is selected from LiV2O5, LiCO2, and Li-doped polyaniline or polypyrrole. The stability of the invention button-type **battery** anode was demonstrated in >500 charge-discharge cycles.

IT **96-48-0, γ -Butyrolactone**
(**electrolytes** from lithium salt-polymer complexes and, for **batteries** and **battery** anodes and cathodes)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IT **9003-11-6D,** Lithium complexes **25322-68-3D,** Polyethylene oxide, Lithium complexes
(**electrolytes** from **nonaq.** aprotic dipolar solvents and, for **batteries** and **battery** anodes and cathodes)

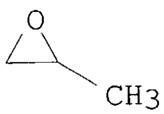
RN 9003-11-6 HCA

CN Oxirane, methyl-, polymer with oxirane (9CI) (CA INDEX NAME)

CM 1

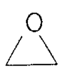
CRN 75-56-9

CMF C3 H6 O

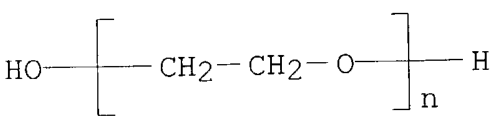


CM 2

CRN 75-21-8
CMF C2 H4 O



RN 25322-68-3 HCA
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IC ICM H01M010-40
ICS H01M004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **battery** anode carbonaceous material; anode lithium intercalatable carbonaceous material; polymer **electrolyte** carbonaceous material anode; salt lithium solvent polymer **electrolyte**; solvent polar salt polymer **electrolyte**
IT **Battery electrolytes**
(aprotic dipolar solvent-contg. lithium salt-PEO or lithium salt-poly(propylene oxide) complexes)
IT **Batteries**, secondary
(lithium-intercalatable carbonaceous material, long cycle-life)
IT Carbonaceous materials
Coke
(lithium-intercalatable, anodes, contg. polymer **electrolytes**, for **batteries**)
IT Solvents
(aprotic, dipolar, **electrolytes** from lithium salt-polymer complexes and, for **batteries** and **battery** anodes and cathodes)
IT Anodes
(**battery**, lithium-intercalatable carbonaceous

materials, contg. polymer **electrolytes**)
IT Carbon fibers, uses
(graphite, lithium-intercalatable, anodes, contg. polymer **electrolytes**, for **batteries**)
IT 7440-44-0 7782-42-5
(carbon fibers, graphite, lithium-intercalatable, anodes, contg. polymer **electrolytes**, for **batteries**)
IT 12162-92-4, Lithium vanadium oxide (LiV2O5) 12190-79-3, Cobalt lithium oxide (liCoO2) 25233-30-1D, reduced, lithium-doped 30604-81-0D, Polypyrrole, reduced, lithium-doped
(cathodes, contg. polymer **electrolytes**, for **batteries**)
IT 67-68-5, DMSO, uses **96-48-0, γ -Butyrolactone** 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate 108-32-7, Propylene carbonate 109-99-9, THF, uses 110-71-4, 1,2-Dimethoxyethane 126-33-0, Sulfolane 616-38-6, Dimethyl carbonate 616-42-2, Dimethyl sulfite 24991-55-7, Polyethyleneglycol dimethyl ether
(**electrolytes** from lithium salt-polymer complexes and, for **batteries** and **battery** anodes and cathodes)
IT 7439-93-2D, Lithium, polymer complexes **9003-11-6D**, Lithium complexes **25322-68-3D**, Polyethylene oxide, Lithium complexes 25322-69-4D, Polypropylene oxide, Lithium complexes
(**electrolytes** from **nonaq.** aprotic dipolar solvents and, for **batteries** and **battery** anodes and cathodes)

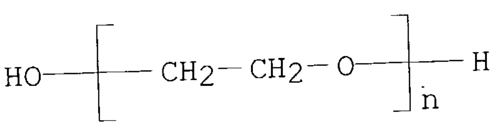
L77 ANSWER 21 OF 24 HCA COPYRIGHT 2004 ACS on STN
113:12580 Phase diagrams of nonionic polymer-water systems: experimental and theoretical studies of the effects of surfactants and other cosolutes. Karlstroem, Gunnar; Carlsson, Anders; Lindman, Bjoern (Chem. Cent., Univ. Lund, Lund, S-221 00, Swed.). Journal of Physical Chemistry, 94(12), 5005-15 (English) 1990. CODEN: JPCHAX. ISSN: 0022-3654.
AB An exptl. investigation of the interactions between nonionic polymers, such as ethyl(hydroxyethyl)cellulose and poly(ethylene oxide), and small mols. (alcs., inorg. salts, and surfactants) in soln. is presented and discussed. The exptl. tool in the investigation is cloud point (**CP**) measurements. The studied polymers belong to a class of colloids which displays a decreased soly. with increasing temp. in aq. (and certain **nonaq.**) solns. At the **CP** temp., the system is transformed from a single isotropic soln. to a two-phase system. If binding of the cosolutes occurs, this may lead to either an increase or a decrease in polymer soly. Alternatively, the cosolutes interact preferably with the solvent and thereby affect the soly. of the polymer. A particularly strong effect on the polymer soly. is

obtained for ionic surfactants in the presence of relatively low concn. of **electrolytes**, where a min. in the **CP** curve is obsd. at low surfactant concns. A theor. model based on Flory-Huggins polymer theory is shown to be capable of describing the obsd. phase behavior. In this model the clouding in the pure polymer-water system is due to an equil. between polar and nonpolar conformers of the polymer segments. The exptl. obsd. phase behavior can then be modeled if there is a strong attraction between the surfactant and the polymer in its polar conformation, a weaker but still strong attraction between the nonpolar segments and the surfactant, and finally a weak attraction between the surfactant and water. Comparison between theor. and exptl. data gives new insight into the interactions on a mol. level. It is indicated that, at temps. close to the **CP**, the surfactant binds to the polymer as single mols. or small micelles, whereas at lower temps. it binds as larger micelles.

IT **25322-68-3**, Poly(ethylene oxide)
(cloud point in aq. soln. of, effect of surfactant or **electrolyte** addn. on)

RN 25322-68-3 HCA

CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



CC 66-4 (Surface Chemistry and Colloids)
Section cross-reference(s): 36, 68

IT Cloud point
(of polymer aq. soln., effect of surfactant or **electrolyte** addn. on)

IT 112-02-7, Hexadecyltrimethylammonium chloride 577-11-7 929-73-7, Dodecylammonium chloride 2536-43-8 9004-58-4, Ethyl(hydroxyethyl)cellulose 9004-64-2 9004-65-3, Methyl(hydroxypropyl)cellulose 9004-67-5, Methyl cellulose 9032-42-2, Methyl(hydroxyethyl)cellulose **25322-68-3**, Poly(ethylene oxide)
(cloud point in aq. soln. of, effect of surfactant or **electrolyte** addn. on)

L77 ANSWER 22 OF 24 HCA COPYRIGHT 2004 ACS on STN

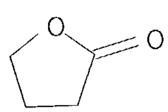
99:195804 A mechanism of ionic conduction of poly(vinylidene fluoride)-lithium perchlorate hybrid films. Tsunemi, Koichi; Ohno, Hiroyuki; Tsuchida, Eishun (Dep. Polym. Chem., Waseda Univ., Tokyo, 160, Japan). Electrochimica Acta, 28(6), 833-7 (English) 1983. CODEN: ELCAAV. ISSN: 0013-4686.

AB Polymeric solid **electrolytes** were prepd. by the hybridization of poly(vinylidene fluoride) [24937-79-9] and LiClO4 [7791-03-9]. These were obtained as 0.1-mm-thick films, and showed high Li ionic cond. (.apprx.10-5 S/cm). The cond. depended on the content of LiClO4 and polar additives having high boiling temp. The amt. of LiClO4 vs. the logarithm of the cond. was linear up to a certain (crit.) amt. of LiClO4. Beyond the crit. value, crystals of LiClO4 grew in the polymer matrix, and the cond. was not increased as much. The **viscosity** and dielec. const. of the additives were major factors leading to increases in the cond. of the hybrid film. Org. polar materials with lower **viscosity** (e.g. DMF [68-12-2] or γ -**butyrolactone** [**96-48-0**]) strongly contributed to the improvement of Li ionic cond. The activation energy of conduction decreased dramatically upon increasing the additive-LiClO4 mol ratio. The Li ions migrated in the conduction path which was formed by the polymer matrix with org. additive mols.

IT **96-48-0 25322-68-3**
(ionic cond. of poly(vinylidene fluoride)-lithium perchlorate films contg.)

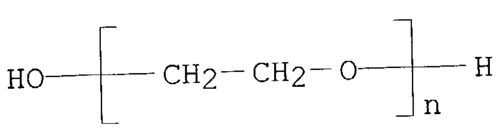
RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



RN 25322-68-3 HCA

CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 76

IT 68-12-2, uses and miscellaneous **96-48-0** 96-49-1 108-32-7 **25322-68-3** 25322-69-4
(ionic cond. of poly(vinylidene fluoride)-lithium perchlorate films contg.)

L77 ANSWER 23 OF 24 HCA COPYRIGHT 2004 ACS on STN

80:9833 Material transport in an **electrolyte** containing a high molecular weight polymer at the surface of a disk or rotating ring electrode. Deslouis, Claude; Epelboin, Israel; Tribollet, Bernard;

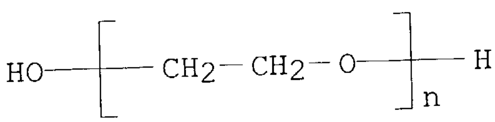
Viet, Loik (Groupe Rech., Univ. Paris VI, Paris, Fr.). Comptes Rendus des Seances de l'Academie des Sciences, Serie C: Sciences Chimiques, 277(10), 353-6 (French) 1973. CODEN: CHDCAQ. ISSN: 0567-6541.

AB An electrochem. method is given, using a disk or rotating ring electrode, to study in laminar flow the **non-Newtonian** character of an aq. **electrolyte** contg. a high mol. wt. polymer; e.g., M KCl at 25° contg. poly(oxyethylene). The method also permits the study of the effect of the local redn. of friction in turbulent flow produced by the presence of a macromol. compd.

IT **25322-68-3**
(potassium chloride **electrolyte** contg., mass transfer in, rotating electrode in relation to)

RN 25322-68-3 HCA

CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



CC 77-12 (Electrochemistry)
Section cross-reference(s): 65, 48

ST laminar flow polymer **electrolyte**; friction turbulent flow macromol **electrolyte**

IT Mass transfer
(in flow, in potassium chloride **electrolyte** contg. polyoxyethylene at surface of rotating electrode)

IT 7447-40-7, uses and miscellaneous
(mass transfer in **electrolyte** of, contg. polyoxyethylene, at rotating electrode)

IT **25322-68-3**
(potassium chloride **electrolyte** contg., mass transfer in, rotating electrode in relation to)

L77 ANSWER 24 OF 24 HCA COPYRIGHT 2004 ACS on STN

45:20942 Original Reference No. 45:3674c-f Liquids with temperature-independent viscosities. Gottner, Georg H. (Inst. Erdolforschung, Hannover, Germany). Erdoel und Kohle, 3, 598-606 (Unavailable) 1950. CODEN: ERKOAJ. ISSN: 0367-1305.

AB There are a no. of liquids showing const. viscosities over a temp. range; however, only two of tech. interest have been discovered so far: the aq. alkylphenol polyglycol ethers RC6H4(OCH2CH2)nOH (when R denotes at least an octyl group and n = 10 . . 12) by Boedecker (C.A. 35, 4656.2) and mixts. of glycerol and dioxane by H. Harms (Deut. Luftfahrtforsch. Untersuch. Mitt. No. 757). A 3rd liquid

having the same property is a mixt. of high-mol. polyisobutylene and benzene. Kinematic viscosities of Oppanol B 100, a polyisobutylene of av. mol. wt. of 100,000 made by the B.A.S.-F. Ludwigshafen dissolved in benzene (Kahlbaum) (% by wt. of polyisobutylene from 0 to 2.38) show practically const. values in a range of temp. from 23° to 60° except at the highest concn. Measurements made on the mixt. contg. 1.07% by wt. of polyisobutylene in a Tsuda viscometer (C.A. 23, 10) indicated a structural viscosity typical of **non-Newtonian** liquids. The anomolous temp. dependence of liquids is discussed. Four principles are suggested for the possible prepn. of liquids with temp.-independent viscosities: (1) by dissolving a more viscous substance of limited soly. (example: dioxane-glycerol), (2) through change in configuration (no example at present), (3) through linear aggregation of asym. mols. with increasing temp. (example: aq. alkylphenol polyglycol solns.), (4) through lateral aggregation of rubber-elastic threadlike mols. with lowering of temp. (example: polyisobutylene in benzene).

IT **25322-68-3**, Polyethylene glycol
   (alkylphenyl ethers, viscosity temp. independence of)
RN 25322-68-3 HCA
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)

$$HO-[-CH_2-CH_2-O-]_n-H$$

   (ethers, viscosity of
CC 2 (General and Physical Chemistry)
IT **Electrolytes**
   (viscosity of)
IT **25322-68-3**, Polyethylene glycol
   (alkylphenyl ethers, viscosity temp. independence of)
IT **25322-68-3**, Polyethylene glycol
   (ethers, viscosity of)

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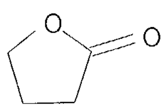
L43 ANSWER 1 OF 11 HCA COPYRIGHT 2004 ACS on STN
138:356252 Nonaqueous **electrolyte** solution and secondary nonaqueous **electrolyte battery**. Sekino, Masahiro; Sato, Asako; Monma, Shun; Oguchi, Masayuki (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2003132943 A2 20030509, 21 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-329949 20011026.
AB The **electrolyte** soln. has an **electrolyte**

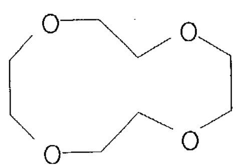
dissolved in a nonaq. solvent mixt.; where the solvent mixt. contains ethylene carbonate (EC), propylene carbonate (PC), . **gamma.-butyrolactone** (GBL), optional vinylene carbonate (VC) and a fifth component excluding EC PC GBL and VC; and satisfies x = 15-50, y = 30-75, 0< z< 30, 0< w≤ 5, and 0< q≤ 5 [x, y, z, w and q represent resp. proportions (vol. %) of EC, PC, GBL, VC and the fifth component (vs. total vol. of the solvent mixt.]. The **battery** has an electrode group contg. the above **electrolyte** soln. in a **battery** case.

IT **96-48-0, γ -Butyrolactone**
  294-93-9, 12-Crown-4
    (Li salt **electrolyte** solns. contg. mixts. of org. solvents with controlled proportions for secondary **batteries**)

RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



RN 294-93-9 HCA
CN 1,4,7,10-Tetraoxacyclododecane (6CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary **battery electrolyte** nonaq solvent mixt content control; **electrolyte** solvent ethylene carbonate propylene carbonate butyrolactone vinylene carbonate
IT **Battery electrolytes**
  Secondary **batteries**
    (Li salt **electrolyte** solns. contg. mixts. of org. solvents with controlled proportions for secondary **batteries**)
IT **96-48-0, γ -Butyrolactone**
  96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 143-24-8, Tetraethylene glycol dimethylether **294-93-9,** 12-Crown-4 420-12-2, Ethylene sulfide 872-36-6, Vinylene carbonate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate

(Li salt **electrolyte** solns. contg. mixts. of org. solvents with controlled proportions for secondary **batteries**)

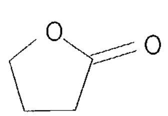
L43 ANSWER 2 OF 11 HCA COPYRIGHT 2004 ACS on STN
138:207707 Computational study of salt association in Li-ion **battery electrolyte.** Tasaki, Ken; Nakamura, Shinichiro (MC Research and Innovation Center, Mountain View, CA, 94042, USA). Proceedings - Electrochemical Society, 2000-21(Rechargeable Lithium Batteries), 421-436 (English) 2001. CODEN: PESODO. ISSN: 0161-6374. Publisher: Electrochemical Society.

AB Salt assocn. of $LiPF_6$ has been investigated through mol. dynamics simulations in a variety of solvents: ethylene carbonate, propylene carbonate, γ-butyro lactone, di-Me carbonate, Et Me carbonate, di-Et carbonate, and others. A new computational method has been presented to det. the degree of salt assocn. based on MD simulation. The predicted values for the degree of assocn. of $LiPF_6$ showed a comparable trend to the exptl. assocn. consts. The method was applied to examine the salt assocn. in the presence of a series of **crown ethers**: 9-**crown**-3, 12-crown-4, 13-crown-4, and 15-crown-5 as the Li^+ trapping agents. The results demonstrated that the **crown ethers** are effective in sepg. the Li^+ ion from the PF_6^- anion and the ability depends on the size of the **crown ether** with 15-**crown**-5 having the largest effect in destabilizing the ion assocn.

IT **96-48-0,** γ-Butyro lactone
(**electrolyte** solvent; mol. dynamics study of $LiPF_6$ salt assocn. in Li-ion **battery electrolyte** with different solvents)

RN 96-48-0 HCA

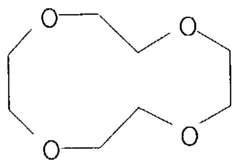
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



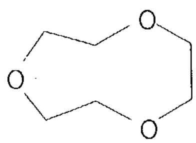
IT **294-93-9,** 12-Crown-4 **27725-91-3,** 9-Crown-3 **33100-27-5,** 15-Crown-5
(lithium ion trapping by; mol. dynamics study of $LiPF_6$ salt assocn. in Li-ion **battery electrolyte** with different solvents)

RN 294-93-9 HCA

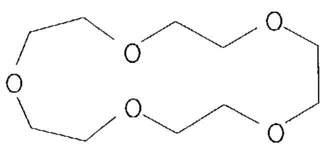
CN 1,4,7,10-Tetraoxacyclododecane (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 27725-91-3 HCA
CN 1,4,7-Trioxonane (8CI, 9CI) (CA INDEX NAME)



RN 33100-27-5 HCA
CN 1,4,7,10,13-Pentaoxacyclopentadecane (8CI, 9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium hexafluorophosphate salt formation **battery electrolyte**
IT **Battery electrolytes**
(mol. dynamics study of LiPF6 salt assocn. in Li-ion **battery electrolyte** with different solvents)
IT Simulation and Modeling, physicochemical
(mol. dynamics; mol. dynamics study of LiPF6 salt assocn. in Li-ion **battery electrolyte** with different solvents)
IT Trapping
(of lithium ion by **crown ethers**; mol. dynamics study of LiPF6 salt assocn. in Li-ion **battery electrolyte** with different solvents)
IT **96-48-0**, γ-Butyro lactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate
(**electrolyte** solvent; mol. dynamics study of LiPF6 salt assocn. in Li-ion **battery electrolyte** with different solvents)
IT **294-93-9**, 12-Crown-4 **27725-91-3**, 9-Crown-3

33100-27-5, 15-Crown-5 55471-29-9, 13-Crown-4
(lithium ion trapping by; mol. dynamics study of LiPF6 salt assocn. in Li-ion **battery electrolyte** with different solvents)

IT 21324-40-3, Lithium phosphorus fluoride LiPF6
(mol. dynamics study of LiPF6 salt assocn. in Li-ion **battery electrolyte** with different solvents)

IT 17341-24-1, Lithium ion Li 1+, analysis
(trapping of, by **crown ethers**; mol. dynamics study of LiPF6 salt assocn. in Li-ion **battery electrolyte** with different solvents)

L43 ANSWER 3 OF 11 HCA COPYRIGHT 2004 ACS on STN

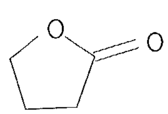
138:15307 Lithium-sulfur **batteries** with good cycle life characteristics. Choi, Soo Seok; Choi, Yunsuk; Jung, Yongju; Lee, Jaewoan; Hwang, Duck Chul; Kim, Joo Soak; Park, Zin; Kim, Seok; Han, Ji Sung (Samsung SDI Co., Ltd., S. Korea). U.S. Pat. Appl. Publ. US 2002192557 A1 20021219, 16 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-72907 20020212. PRIORITY: KR 2001-30878 20010601.

AB A lithium-sulfur **battery** having a pos. electrode including a pos. active material including an active sulfur, where the pos. electrode comprises an electron-conductive path and an ion-conductive path, and includes active pores of the av. size of up to 20 μm having both electron-conductive and ion-conductive properties, and are filled with the active sulfur during an electrochem. reaction of the **battery**.

IT **96-48-0**, Butyrolactone
(lithium-sulfur **batteries** with good cycle life characteristics)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M004-62

NCL 429232000; 429231950; 429218100; 429212000; 427058000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium sulfur rechargeable **battery**

IT Fluoropolymers, uses
Polyoxyalkylenes, uses
Polyvinyl butyrals
(binder; lithium-sulfur **batteries** with good cycle life characteristics)

IT Ceramics

(**electrolyte**; lithium-sulfur **batteries** with
good cycle life characteristics)
IT Glass, uses
(**electrolyte**; lithium-sulfur **batteries** with
good cycle life characteristics)
IT **Battery** anodes
Battery cathodes
Battery electrolytes
Polymer **electrolytes**
(lithium-sulfur **batteries** with good cycle life
characteristics)
IT **Crown ethers**
Sulfones
(lithium-sulfur **batteries** with good cycle life
characteristics)
IT Secondary **batteries**
(lithium; lithium-sulfur **batteries** with good cycle life
characteristics)
IT Ligroine
(solvent; lithium-sulfur **batteries** with good cycle life
characteristics)
IT Lithium alloy, base
(lithium-sulfur **batteries** with good cycle life
characteristics)
IT 9002-84-0, Ptfe 9002-86-2, Polyvinyl chloride 9002-89-5,
Polyvinyl alcohol 9003-19-4, Polyvinyl ether 9003-20-7,
Polyvinyl acetate 9003-22-9, Vinyl acetate-vinyl chloride
copolymer 9003-32-1, Polyethyl acrylate 9003-47-8,
Polyvinylpyridine 9003-53-6, Polystyrene 9004-35-7, Cellulose
acetate 9010-88-2, Ethyl acrylate-methyl methacrylate copolymer
9011-14-7, Pmma 9011-17-0, Hexafluoropropylene-vinylidene fluoride
copolymer 24937-79-9, Polyvinylidene fluoride 25014-41-9,
Polyacrylonitrile 25086-89-9 25322-68-3, Peo
(binder; lithium-sulfur **batteries** with good cycle life
characteristics)
IT 7439-93-2, Lithium, uses 7704-34-9, Sulfur, uses 33454-82-9,
Lithium triflate
(lithium-sulfur **batteries** with good cycle life
characteristics)
IT 115672-18-9P, Lithium sulfide (Li2(S8))
(lithium-sulfur **batteries** with good cycle life
characteristics)
IT 67-68-5, Dmso, uses 67-71-0, Dimethyl sulfone 75-52-5,
Nitromethane, uses 76-05-1, Trifluoroacetic acid, uses
96-48-0, Butyrolactone 107-21-1, Ethylene glycol, uses
109-99-9, Thf, uses 110-60-1, Tetramethylene diamine 110-71-4,
Glyme 110-86-1, Pyridine, uses 110-95-2, Tetramethyl propylene
diamine 111-96-6, Diglyme 126-33-0, Sulfolane 126-73-8,

Tributyl phosphate, uses 127-19-5, n,n-Dimethyl acetamide 143-24-8, Tetraglyme 512-56-1, Trimethyl phosphate 617-84-5, n,n-Diethylformamide 632-22-4, Tetramethyl urea 646-06-0, Dioxolane 680-31-9, Hexamethylphosphoramide, uses 685-91-6, n,n-Diethyl acetamide 872-50-4, n-Methylpyrrolidone, uses 1330-20-7, Xylene, uses 1493-13-6, Trifluoromethanesulfonic acid 2832-49-7, n,n,n',n'-Tetraethyl sulfamide 7446-09-5, Sulfur dioxide, uses 7637-07-2, uses 9080-49-3, Polysulfide
(lithium-sulfur **batteries** with good cycle life characteristics)

IT 78-51-3 84-66-2, Diethyl phthalate 84-74-2, Dibutyl phthalate 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 131-11-3, Dimethyl phthalate 2459-10-1, Trimethyl trimellitate
(plasticizer; lithium-sulfur **batteries** with good cycle life characteristics)

IT 60-29-7, Ether, uses 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 71-55-6, Trichloroethane 75-09-2, Dichloromethane, uses 79-01-6, Trichloroethylene, uses 110-54-3, Hexane, uses 110-82-7, Cyclohexane, uses
(solvent; lithium-sulfur **batteries** with good cycle life characteristics)

L43 ANSWER 4 OF 11 HCA COPYRIGHT 2004 ACS on STN

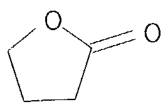
136:105137 Nonaqueous **electrolyte** solution and secondary nonaqueous **electrolyte battery**. Sekino, Masahiro; Fujiwara, Masashi; Sato, Asako; Kadoma, Shun; Koguchi, Masayuki; Kato, Makoto; Hasebe, Hiroyuki (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2002015771 A2 20020118, 28 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-54937 20010228. PRIORITY: JP 2000-131615 20000428.

AB The **electrolyte** soln. has a Li salt dissolved in a nonaq. solvent, where the solvent contains ethylene carbonate 15-50, propylene carbonate 2-35, γ -**butyrolactone** 30-85,, and a 4th component 0-5 vol.%. The 4th component is selected from vinylene carbonate, vinyl ethylene carbonate, ethylene sulfite, , Ph ethylene carbonate, 12-crown-4, and tetraethylene glycol di-Me ether; and may contain a 5th component when the 4th component is vinylene carbonate. The **battery** has the **electrolyte** soln. retained in an electrode stack in a ≤0.3 mm thick package.

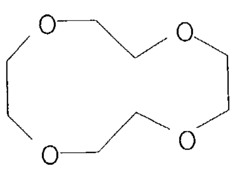
IT **96-48-0, γ -Butyrolactone**
(compns. of carbonate ester based **electrolyte** solvent mixts. for secondary lithium **batteries**)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



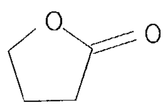
IT **294-93-9**, 12-Crown-4
(compns. of carbonate ester based **electrolyte** solvent mixts. for secondary lithium **batteries**)
RN 294-93-9 HCA
CN 1,4,7,10-Tetraoxacyclododecane (6CI, 8CI, 9CI) (CA INDEX NAME)



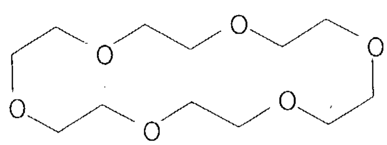
IC ICM H01M010-40
ICS H01M010-40; H01M002-02; H01M006-16
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary lithium **battery electrolyte** carbonate ester solvent mixt
IT **Battery electrolytes**
(compns. of carbonate ester based **electrolyte** solvent mixts. for secondary lithium **batteries**)
IT **96-48-0**, γ -**Butyrolactone**
96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
14283-07-9, Lithium fluoroborate
(compns. of carbonate ester based **electrolyte** solvent mixts. for secondary lithium **batteries**)
IT 143-24-8, Tetraethylene glycol dimethyl ether **294-93-9**, 12-Crown-4 872-36-6, Vinylene carbonate 3741-38-6, Ethylene sulfite 4427-92-3, Phenylethylene carbonate 4427-96-7, Vinyl ethylene carbonate
(compns. of carbonate ester based **electrolyte** solvent mixts. for secondary lithium **batteries**)

L43 ANSWER 5 OF 11 HCA COPYRIGHT 2004 ACS on STN
133:25368 Maleate salt **electrolyte** solutions for improved hot and cold characteristics in aluminum **electrolytic** capacitors. Matsuda, Akihiro (Nichicon Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2000164468 A2 20000616, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-334617 19981125.
AB The additive in the title maleate **electrolyte** soln. dissolved in γ -**butyrolactone** and ethylene glycol solutes is 18-crown-6.

IT 96-48-0, γ -Butyrolactone
(**electrolyte** solvent; maleate salt **electrolyte** solns. for improved hot and cold characteristics in aluminum **electrolytic** capacitors)
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



IT **17455-13-9**, 18-Crown-6
(maleate **electrolyte** additive; maleate salt **electrolyte** solns. for improved hot and cold characteristics in aluminum **electrolytic** capacitors)
RN 17455-13-9 HCA
CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



IC ICM H01G009-035
CC 76-2 (Electric Phenomena)
Section cross-reference(s): 28, 72
ST crown additive sp resistance low temp **electrolyte** capacitor; maleate salt **electrolyte** butyrolactone soln capacitor
IT 1069-58-5, Triethylamine hydrogen maleate
(**electrolyte** soln.; maleate salt **electrolyte** solns. for improved hot and cold characteristics in aluminum **electrolytic** capacitors)
IT **96-48-0, γ -Butyrolactone**
107-21-1, Ethylene glycol, uses
(**electrolyte** solvent; maleate salt **electrolyte** solns. for improved hot and cold characteristics in aluminum **electrolytic** capacitors)
IT 142-44-9, properties
(**electrolyte**; maleate salt **electrolyte** solns. for improved hot and cold characteristics in aluminum **electrolytic** capacitors)
IT 7429-90-5, Aluminum, properties
(**electrolytic** capacitor electrode; maleate salt **electrolyte** solns. for improved hot and cold characteristics in aluminum **electrolytic** capacitors)

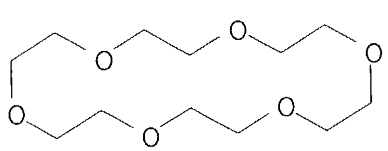
IT **17455-13-9**, 18-Crown-6
(maleate **electrolyte** additive; maleate salt **electrolyte** solns. for improved hot and cold characteristics in aluminum **electrolytic** capacitors)

L43 ANSWER 6 OF 11 HCA COPYRIGHT 2004 ACS on STN
130:273171 Effect of the **electrolyte** nature on the electrochemical doping of poly-3-phenylthiophene. Pokhodenko, V. D.; Krylov, V. A.; Konoshchuk, N. V. (L.V. Pisarzhevsky Institute of Physical Chemistry, Free Radicals Department, National Academy of Sciences of Ukraine, Kiev, 252039, Ukraine). Synthetic Metals, 99(2), 91-95 (English) 1999. CODEN: SYMEDZ. ISSN: 0379-6779. Publisher: Elsevier Science S.A..

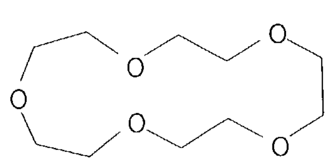
AB Electrochem. p- and n-doping of poly-3-phenylthiophene in org. aprotic bipolar solvents was studied. Potential of polymer p-doping is diminishing proportionally to lowering of solvent mols. dipole moment due to ion-dipole interaction of ClO4- doping anion with solvent mols. Potential of polymer n-doping in the presence of Et4N+ and Bu4N+ cations is detd. by solvation of anion radical fragments of polymer. Good linear dependence between the potential of polymer n-doping and Dimroth-Reihardt solvent parameter was obtained. The electrochem. n-doping of poly-3-phenylthiophene by Li+ cations could be realized in acetonitrile only and its value depends on **crown-ether** nature because of formation of both complexes with Li+ and stable solvates with acetonitrile.

IT **17455-13-9**, 18-Crown-6 **33100-27-5**, 15-Crown-5
(electrochem. doping of polyphenylthiophene in acetonitrile contg. LiClO4 and)

RN 17455-13-9 HCA
CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



RN 33100-27-5 HCA
CN 1,4,7,10,13-Pentaoxacyclopentadecane (8CI, 9CI) (CA INDEX NAME)

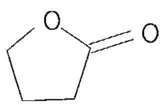


IT **96-48-0, γ -Butyrolactone**

(electrochem. doping of polyphenylthiophene in γ -
butyrolactone contg. $LiClO_4$ or $NaClO_4$ or Et_4NClO_4 or
Bu_4NClO_4)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)
Section cross-reference(s): 36

ST **electrolyte** effect electrochem doping polyphenylthiophene; solvent effect electrochem doping polyphenylthiophene; **crown ether** effect electrochem doping polyphenylthiophene

IT 95831-29-1, Poly-3-phenylthiophene
(effect of **electrolyte** nature on electrochem. doping of polyphenylthiophene)

IT 66-40-0, Tetraethylammonium 10549-76-5, Tetrabutylammonium 14797-73-0, Perchlorate 17341-24-1, Lithium ion(1+), properties 17341-25-2, Sodium ion(1+), properties
(effect of **electrolyte** nature on electrochem. doping of polyphenylthiophene with)

IT 14098-24-9, Benzo-18-crown-6 14098-44-3, Benzo-15-crown-5 **17455-13-9**, 18-Crown-6 **33100-27-5**, 15-Crown-5 92970-41-7, 15-Crown-4
(electrochem. doping of polyphenylthiophene in acetonitrile contg. $LiClO_4$ and)

IT **96-48-0**, γ **-Butyrolactone**
(electrochem. doping of polyphenylthiophene in γ - **butyrolactone** contg. $LiClO_4$ or $NaClO_4$ or Et_4NClO_4 or Bu_4NClO_4)

L43 ANSWER 7 OF 11 HCA COPYRIGHT 2004 ACS on STN

129:6493 Aprotic **electrolytes** with **crown ethers** and hexametapol intended for lithium **batteries**. Kuz'minskii, E. V.; Prisyazhnyi, V. D.; Berezhnoi, E. O.; Golub, N. B. (Electrochemical Power Engineering Division, Institute of General and Inorganic Chemistry, National Academy of Sciences of Ukraine, Kiev, 252142, Ukraine). Russian Journal of Electrochemistry (Translation of Elektrokhimiya), 34(5), 473-475 (English) 1998. CODEN: RJELE3. ISSN: 1023-1935. Publisher: MAIK Nauka/Interperiodica Publishing.

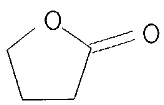
AB Complex **electrolytes** contg. hexametapol and **crown ethers** with different cavity size (dibenzo-18-crown-6, 18-crown-6, 15-crown-5) are studied. The effects of these functional additives on specific characteristics of $Li-MnO_2$

batteries are detd.

IT **96-48-0, γ -Butyrolactone**
17455-13-9, 18-Crown-6 **33100-27-5**, 15-Crown-5
(**electrolyte** contg.; complex aprotic **electrolytes** with **crown ethers** and hexametapol for lithium/manganese dioxide **batteries**)

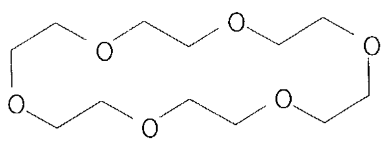
RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



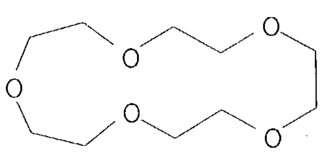
RN 17455-13-9 HCA

CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



RN 33100-27-5 HCA

CN 1,4,7,10,13-Pentaoxacyclopentadecane (8CI, 9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST hexametapol complex aprotic **electrolyte battery; crown ether** complex aprotic **electrolyte battery**; lithium manganese dioxide **battery** aprotic **electrolyte**

IT **Battery electrolytes**
Electric conductivity
(complex aprotic **electrolytes** with **crown ethers** and hexametapol for lithium/manganese dioxide **batteries**)

IT **96-48-0, γ -Butyrolactone**
680-31-9, Hexametapol, uses 14187-32-7, Dibenzo-18-crown-6
14283-07-9, Lithium tetrafluoroborate **17455-13-9**,
18-Crown-6 **33100-27-5**, 15-Crown-5
(**electrolyte** contg.; complex aprotic **electrolytes** with **crown ethers** and

hexametapol for lithium/manganese dioxide **batteries**)

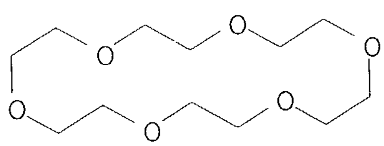
L43 ANSWER 8 OF 11 HCA COPYRIGHT 2004 ACS on STN
121:120150 Effect of the nature of the medium on the electrochemical behavior of polyaniline in nonprotonic **electrolytes**. Krylov, V. A.; Kurys, Ya. I.; Pokhodenko, V. D. (L. V. Pisarzhevsky Inst. Phys. Chem., Kiev, Ukraine). Teoreticheskaya i Eksperimental'naya Khimiya, 29(3), 226-32 (Russian) 1993. CODEN: TEKHA4. ISSN: 0497-2627.

AB The electrochem. behavior of polyaniline films in nonprotonic bipolar org. **electrolytes** has been studied. The effect of the solvent (γ -**butyrolactone**, acetonitrile, propylene carbonate) nature, the cation of **electrolyte** background salt and the **crown-ether** on redox-properties of polyaniline was investigated.

IT **17455-13-9**, 18-Crown-6
(electrochem. redox reactions of polyaniline in soln. contg.)

RN 17455-13-9 HCA

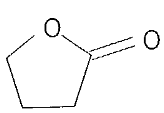
CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



IT **96-48-0**, γ -**Butyrolactone**
(electrochem. redox reactions of polyaniline in soln. of)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)
Section cross-reference(s): 36

ST polyaniline electrochem redox reaction solvent effect; oxidn redn elec potential polyaniline **electrolyte**

IT Redox reaction
(electrochem., of polyaniline, **electrolyte** and solvent effect on)

IT Electric potential
(oxidn., of polyaniline, **electrolyte** and solvent effect on)

IT Electric potential
(redn., of polyaniline, **electrolyte** and solvent effect

on)

IT 1643-19-2, Tetrabutylammonium bromide 1923-70-2, Tetrabutylammonium perchlorate 7550-35-8, Lithium bromide 7791-03-9, Lithium perchlorate **17455-13-9**, 18-Crown-6
(electrochem. redox reactions of polyaniline in soln. contg.)

IT 75-05-8, Acetonitrile, uses **96-48-0, γ -Butyrolactone** 108-32-7, Propylene carbonate
(electrochem. redox reactions of polyaniline in soln. of)

IT 25233-30-1, Polyaniline
(electrochem. redox reactions of, solvent and **electrolyte** effect on)

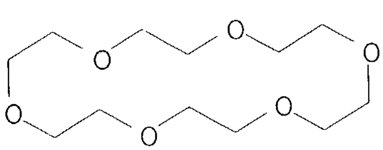
L43 ANSWER 9 OF 11 HCA COPYRIGHT 2004 ACS on STN
119:253595 New **electrolytes** and polymer cathode materials for lithium **batteries**. Pokhodenko, V. D.; Koshechko, V. G.; Krylov, V. A. (L. V. Pisarzhevsky Inst. Phys. Chem., Kiev, 252028, Ukraine). Journal of Power Sources, 45(1), 1-5 (English) 1993. CODEN: JPSODZ. ISSN: 0378-7753.

AB Aprotic **electrolytes** based on propylene carbonate and . **gamma.-butyrolactone** with polyethers, quinones, and arom. hydrocarbons were evaluated for use in lithium **batteries**. The **electrolytes** form protective, ion-conductive films on the surface of Li and contribute to improved operation of Li **batteries**. Processes for synthesis of conducting org. polymers (polyaniline, polypyrrole, etc.) and transition metal (V2O5, TiS2) binary composites for cathodes for secondary Li **batteries** were also developed.

IT **17455-13-9**, 18-Crown-6
(**electrolyte** contg., lithium perchlorate, for lithium-manganese dioxide **batteries**)

RN 17455-13-9 HCA

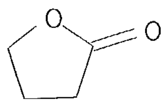
CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



IT **96-48-0, γ -Butyrolactone**
(**electrolyte** contg., with org. solvents and lithium salts, for **batteries**)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72

ST **electrolyte** org solvent lithium anode; conducting polymer composite cathode **battery**

IT **Battery electrolytes**
(lithium salts, with arom. hydrocarbons and **crown ethers** and org. solvents)

IT Polyamines
(aniline-based, composites, with vanadium pentoxide, cathodes, for lithium **batteries**)

IT Cathodes
(**battery**, polymer-transition metal composites, conducting)

IT 1314-62-1, Vanadium oxide (V2O5), uses
(composites, with polyaniline, cathodes, for lithium **batteries**)

IT 12039-13-3, Titanium sulfide (TiS2)
(composites, with polypyrrole, cathodes, for lithium **batteries**)

IT 30604-81-0, Polypyrrole
(composites, with titanium sulfide, cathodes, for lithium **batteries**)

IT 25233-30-1, Polyaniline
(composites, with vanadium pentoxide, cathodes, for lithium **batteries**)

IT 85-01-8, Phenanthrene, uses 120-12-7, Anthracene, uses 14098-44-3, Benzo-15-crown-5 14187-32-7, Dibenzo-18-crown-6 **17455-13-9**, 18-Crown-6
(**electrolyte** contg., lithium perchlorate, for lithium-manganese dioxide **batteries**)

IT **96-48-0**, γ **-Butyrolactone**
108-32-7, Propylene carbonate 110-71-4
(**electrolyte** contg., with org. solvents and lithium salts, for **batteries**)

IT 7791-03-9, Lithium perchlorate (LiClO4)
(**electrolyte**, contg. org. solvents, for lithium-manganese dioxide **batteries**)

L43 ANSWER 10 OF 11 HCA COPYRIGHT 2004 ACS on STN
113:122502 The transport properties of aprotonic **electrolyte** on the base of γ **-butyrolactone** and lithium fluoroborate containing **crown ethers**. Mashkin,

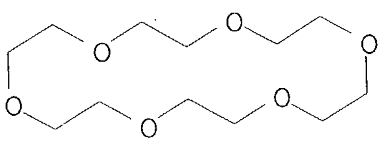
O. A. (Inst. Obshch. Neorg. Khim., Kiev, USSR). Ukrainskii Khimicheskii Zhurnal (Russian Edition), 56(5), 500-2 (Russian) 1990. CODEN: UKZHAU. ISSN: 0041-6045.

AB The elec. cond. of solns. based on γ -**butyrolactone** and contg. LiBF4 and dibenzo-18-crown-6 or 18-crown-6 or 15-crown-5 was examd. as a function of the soln. compn. Also current-potential characteristics were recorded. The **crown-ether** addns. decrease the potential window of the **electrolyte** stability.

IT **17455-13-9**, 18-Crown-6 **33100-27-5**, 15-Crown-5
(elec. cond. and electrochem. window of butyrolactone with lithium tetrafluoroborate and)

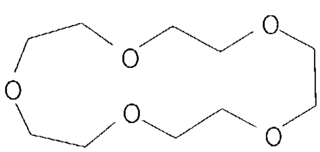
RN 17455-13-9 HCA

CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



RN 33100-27-5 HCA

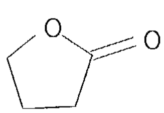
CN 1,4,7,10,13-Pentaoxacyclopentadecane (8CI, 9CI) (CA INDEX NAME)



IT **96-48-0, γ -Butyrolactone**
(elec. cond. and electrochem. window of, with lithium tetrafluoroborate and **crown ethers**)

RN 96-48-0 HCA

CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



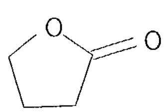
CC 72-2 (Electrochemistry)
Section cross-reference(s): 76

ST butyrolactone lithium tetrafluoroborate elec cond; **crown ether** addn current potential characteristic

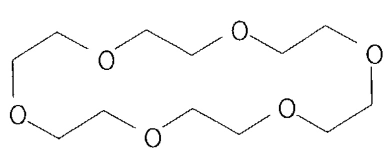
IT Electric current-potential relationship
(for butyrolactone with lithium tetrafluoroborate and **crown ethers**)

IT Electric conductivity and conduction
(of γ -**butyrolactone** with lithium
tetrafluoroborate and **crown ethers**)
IT 14187-32-7, Dibenzo-18-crown-6 **17455-13-9**, 18-Crown-6
33100-27-5, 15-Crown-5
(elec. cond. and electrochem. window of butyrolactone with
lithium tetrafluoroborate and)
IT 14283-07-9, Lithium tetrafluoroborate
(elec. cond. and electrochem. window of butyrolactone with,
crown ethers addn. effect on)
IT **96-48-0**, γ -**Butyrolactone**
(elec. cond. and electrochem. window of, with lithium
tetrafluoroborate and **crown ethers**)

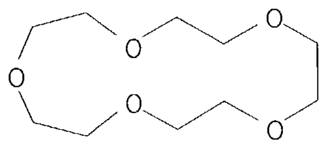
L43 ANSWER 11 OF 11 HCA COPYRIGHT 2004 ACS on STN
106:77259 Electric double-layer capacitors. Okamoto, Masashi; Yoneda, Hajime; Fujiwara, Makoto (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 61204925 A2 19860911 Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-45441 19850307.
AB In an elec. double-layer capacitor, each layer consists of a C (or activated C) fiber polarizable electrode and a conductive electrode, and there is an insulator separator between the polarizable electrodes of the 2 layers. The layers are impregnated with an **electrolyte** from propylene carbonate (or γ -**butyrolactone**), contg. $LiBF_4$ (or KBF_4) 100 and <20 wt.% of a **crown ether**, such as 15-Crown-5. The capacitor has decreased internal impedance and d.c. resistance.
IT **96-48-0**, γ -**Butyrolactone**
17455-13-9, 18-Crown-6 **33100-27-5**, 15-Crown-5
(**electrolytes** contg., for elec. double-layer
capacitors)
RN 96-48-0 HCA
CN 2(3H)-Furanone, dihydro- (8CI, 9CI) (CA INDEX NAME)



RN 17455-13-9 HCA
CN 1,4,7,10,13,16-Hexaoxacyclooctadecane (8CI, 9CI) (CA INDEX NAME)



RN 33100-27-5 HCA
CN 1,4,7,10,13-Pentaoxacyclopentadecane (8CI, 9CI) (CA INDEX NAME)



IC ICM H01G009-00
CC 76-10 (Electric Phenomena)
ST double layer elec capacitor; carbon fiber polarizable capacitor electrode; lithium tetrafluoroborate capacitor **electrolyte** ; potassium tetrafluoroborate capacitor **electrolyte;** fluoroborate capacitor **electrolyte;** propylene carbonate capacitor **electrolyte;** butyrolactone capacitor **electrolyte; crown ether** capacitor **electrolyte**
IT Electric capacitors
(double-layer, **electrolytes** contg. fluoroborates and **crown ethers** for)
IT **Crown** compounds
(**ethers, electrolytes** contg., for elec. double-layer capacitors)
IT **96-48-0, γ -Butyrolactone**
108-32-7, Propylene carbonate 14075-53-7, Potassium tetrafluoroborate 14283-07-9, Lithium tetrafluoroborate
17455-13-9, 18-Crown-6 **33100-27-5,** 15-Crown-5
(**electrolytes** contg., for elec. double-layer capacitors)